Gleanings in Bee Culture

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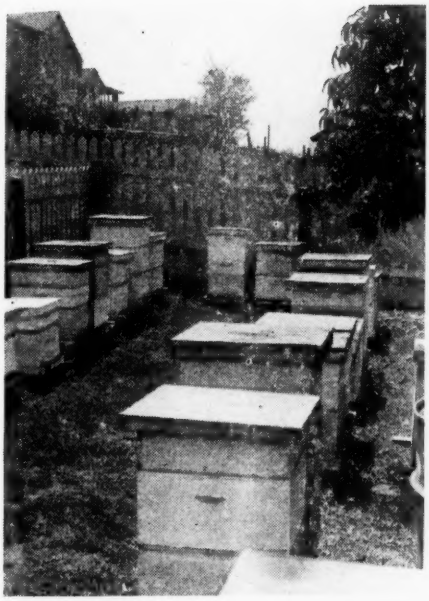
A New Horizon Beckons

By Arch P. Woodson

Hoar frost stands out crystal like on the oaks and maples gracing these Virginia hills this morning, as I complete the final chores of this year's beekeeping in our backyard apiary. Our bees are all snug and safe in their hives with plenty of food for the coming winter season now close at hand. Each hive has close to 40 pounds of summer and fall honey, which should be plenty to carry them safely through until the springtime sun with its flowers arrives again.

We have always been able to resist the temptation to glean too closely, even when the price of honey has been exceedingly high, as it has been here since price ceilings were removed. Only last week, when visiting our corner grocery, I happened to note the retail price on a few five pound pails of very dark honey they had on the shelves. The price—$2.98 per pail! Surely chunk comb honey cannot honestly be worth so much! I was astounded at the price and in amazement I find myself wondering if the beekeepers of this country are not killing the goose that lays the golden egg if this is the usual retail price of honey throughout our land.



A profitable back lot town apiary operated by the writer of this article.

Such unheard of prices will surely do nothing to promote the future sale of honey, as few new customers can or will be induced to use honey at such fabulous prices. Soon

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B & Z Library

YUM

now, perhaps, sugar will be available again and the housewives will remember these high prices of honey with malice in their hearts. We sold our honey this year at a very nominal price of $1.25 per five pound pail of chunk comb honey. It is quite true that we made very little, if any, profit on our honey, but we do like to think that perhaps our neighbors and friends will remember us with some little gratitude in the days that lie ahead.

Our honey production this year was none too good. I think we would have had close to 45 pounds per hive surplus from each of our 16 hives, but we left part of the summer honey on the hives fearing an early frost and knowing the impossibility of obtaining sugar for fall feeding.

The wisdom of that course soon became apparent. On the 6th day of October we had an early frost which almost completely put an end to any further gathering of nectar. Blue and white aster, goldenrod, spanish needle, heartsease, and many fall flowers of lesser worth, bloomed in profusion but the extremely early frost put a quick finish to all prospects of a fair fall flow. How lucky we were to leave part of the summer honey on the hives for winter food!

A few days ago I received a card from an unknown friend in Pennsylvania, with some very sage and timely advice concerning the use of that wonder drug, sulfa, in the treatment of AFB. Two years ago, in an article I had written for Gleanings, I warned that our usual treatments of that day were proving so inefficient in the control or curing of AFB that I had faith only in burning. In a later article last year I said,"Perhaps within the structure of those new wonder drugs lies the answer to the conquering of this insidious spore, the bane of beekeeping".

Even at that time, with the help and advice of my eldest son, an army medical doctor, I was deep in experimental work with these new drugs in the control of AFB. We tried out both the penicillin and sulfa drugs in a good many different ways, quite thoroughly. Penicillin was not effective, its results being entirely negative. But when we hit on sulfathiazole! ah! That magic white powder, sodium sulfathiazole....it was a quite different story! AFB disappeared from diseased hives like magic and magic it must have been.

We Try Sulfathiazole

We had one case of AFB in our own backyard apiary, so in addition to treating this one with one gallon of heavily medicated syrup, we treated all the other 15 hives as a preventive measure. The one hive which had AFB soon cleaned up and up to the present time no more of the disease has reappeared.

Hearing of a neighbor out in the country who had lost his three hives of bees from AFB, we paid him a visit, persuading him to give us the hives with their diseased material. In these hives we placed three heavy swarms, feeding them on four different occasions with syrup heavily medicated with sodium sulfathiazole.

The bees cleaned out the old diseased combs with speed and soon new brood was appearing with no trace of AFB. Within six weeks not a trace of diseased material remained to be seen in any of the three hives. When frost arrived we gave the three hives back to their original owner, completely clean and with 25 pounds of surplus honey on the hives!

What a painful thing it is now to remember all the burning and destroying of bees and fine equipment, as has been the lot of us beekeepers in the hapless years that are gone. What a debt of gratitude we owe our great American scientists, the best in the world, if they have now really given us a cure for AFB in that magic white powder called sulfathiazole! The treatment has proven to be reliable. Let us hope that the cure will be permanent and that this bane, AFB, will be no more.

Let us hope and pray that the day of the torch and faggot is a thing of the past and like a bad dream will disappear into that limbo of forgotten things where all bad dreams should go.

Dawn is breaking over the horizon, a dawn bright with good promise for the beekeepers of the world. No longer will the torch and faggot be our master....a new day beckons us.

Virginia.

Spring Management of Wintered Colonies in Alberta

By R. E. English
Supervisor of Department of Agriculture of Alberta, Canada.

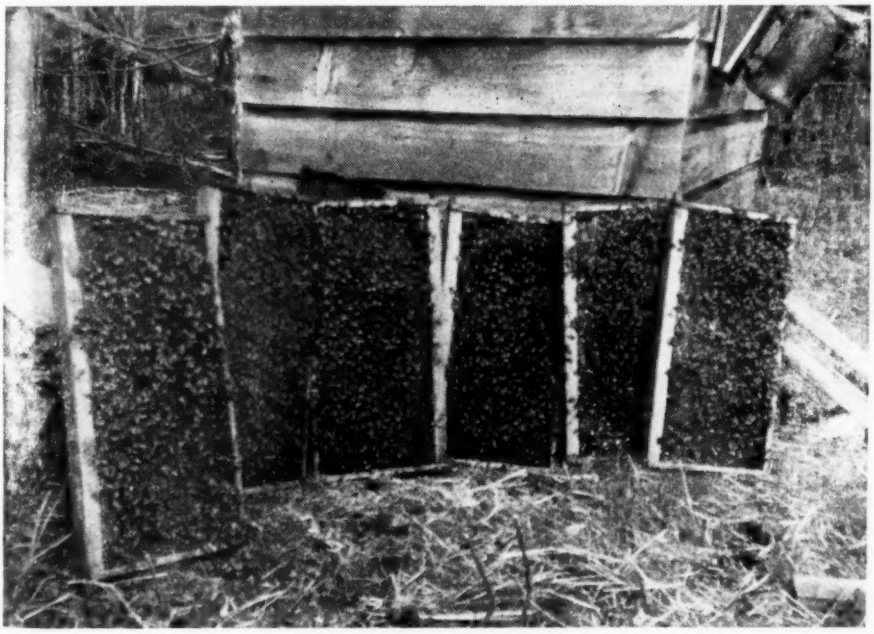
Honey production from package bees is still immensely popular in Alberta. In 1945, 55,000 package colonies were operated as compared to 9,000 that had been wintered over. In the fall of 1943, 23 percent of the colonies in operation were packed for winter; but the number was reduced to 14 percent in 1944. (Statistics to cover 1945-'46 year are not yet completed.)

Although it has been successfully demonstrated that bees can be wintered here, losses continue to be heavy and frequently run as high as 50 percent. To this figure we must add the less spectacular loss resulting from spring dwindling which reduces colonies to the point that they fail to build up sufficiently to gather a satisfactory honey crop as compared to package bees. W. G. le Maistre, Provincial Apiarist, referred to this type of loss in his last annual report when he wrote "observation has shown that many successfully wintered colonies have failed to be more productive than imported packages".

Fortunately, the situation described above bears little relation to what can be done. While the economics of wintering bees in Alberta seems not to have been determined experimentally, there is no excuse for the heavy losses generally experienced.

In 1945, a start was made toward experimenting on beekeepers' management problems at the provincial apiary situated near Edmonton. The production of wintered colonies of bees was compared with the production of 2-lb. and 6-lb. packages respectively. Wintered colonies yielded 86 pounds of honey as compared to 56 and 72 pounds for the 2-lb. and 6-lb. packages. However, Mr. le Maistre was careful to indicate that further tests would be necessary to establish reliable comparative yields.

Direct comparison on the basis of honey production alone is not sufficient to establish superiority for one or the other type of enterprise. In the final analysis the comparative cost of the honey produced, considered in relation to the convenience



Good successfully-wintered colonies "go to town" on brood rearing in the spring—note winter aspects still prevail.

Part of the Provincial Experimental Apiary near Edmonton, Alberta.

of the individual operator, will eventually determine the popularity of wintering versus package bee honey production. In the absence of comparative production costs, I shall not attempt to settle the differences. However, I should like to point out that beekeepers who practice wintering should seek improvements in apiary management, with the view toward fully utilizing the bumping colonies of bees it is possible for them to produce.

When wintered outside our bees commence brood rearing between the middle to near the end of March. Strong colonies expand the brood nest rapidly in April. (Spring dwindling affects weak colonies and pulls them down in this month.) The appearance of pollen and minor flows (willow) increase activity. Even fair colonies are usually prepared to make good use of the dandelion flow normally starting about the middle of May. It is not uncommon to have five supers of bees on each wintered stand by the middle of June. On the average, we receive our highest precipitation in June; our main honey flow does not start until near the end of the month.

On the basis of population, package bees are far behind well-managed wintered colonies on the first of July. However, the relatively weak package colonies give a surprisingly good account of themselves. Why don't wintered colonies yield in more direct proportion to bee population as at the commencement of the main flow? Well, we don't know. The colonies may have passed their peak, contain too many old bees, or tend to support too large a brood nest. Is colony morale the dominant factor in the situation? If so, the whole question would seem to involve the adjustment of colony development to coincide with the honey flow.

In Central Alberta as in the Province generally, the honey flows are exceedingly irregular, of relatively short duration, and very intense. Not unfrequently there are periods of absolute dearths of nectar. We understand that further south honey flows are less intense and of long duration. The timing of colony development is less important under these conditions. We must conclude that the timing and nature of our honey flows are not conducive to full utilization of populous colonies on wintered stands.

Experiments at Brandon, Manitoba

Ed Braun, Dominion Experimental Farm Apiarist at Brandon, Man., has experimented extensively in the manipulation of wintered colonies. Based on an average of tests begun in 1935, Braun has shown that at Brandon, the production of colonies containing six or more frames of bees when first examined in the spring, was increased through division about the middle of May.

Italian, Caucasian, and Carniolan races of bees were included in the tests. An over-wintered queen of the same race was introduced into each new division. Average production for undivided and once-divided colonies were as follows:

Races of Bees	Not Divided	Parent Colony	Divided Division	Total	Increase
Italian	254	189	138	327	73
Caucasian	190	185	100	285	99
Carniolan	226	250	149	399	173
Average	223	208	129	337	115

The result of the experiment for 1945 is reported as follows: "This year's honey crop from six undivided colonies averaged 139 lbs. of

Sun Ray Apiary, St. Paul. Operated by A. Brassard

honey, from the parent divided colony the average was 166 lbs., while the parent colony plus the division gave a total of 226 pounds." Braun concludes that, "Apparently there is a population peak within the colony, above which surplus nectar storage is not increased and may actually be decreased."

The Brandon results are interesting. Should it be possible to increase yields similarly through colony division in Alberta, the beekeeper who winters stands to gain by following the practice. Close calculation is not necessary to reach the conclusion that 100 pounds of honey will return more than the price of an extra queen and the cost of labor involved in colony division.

Experiment with Divided Colonies and Packages

I reasoned that since package bees do comparatively well with us, divisions strong enough to compare with packages at the date set out should likewise yield a crop. Accordingly on May 12 this year I set

A close-up of the apiary house and trailer Mr. Brassard uses.

out six divisions. There was plenty of surplus honey for all in the hives and dandelions were showing. The divisions were sprinkled with sugar syrup and young California queens introduced. (Three queens successfully wintered in nuclei had been used to replace queens that arrived dead with packages.) It seemed desirable to have the introduced queens start laying at once, so practically all the candy was removed from the cage to permit easy release. All were accepted.

In the same yard eleven package colonies had been installed about the end of April. Thus I had in one location the different kinds of colony material between which we are most interested in drawing comparisons. However, the experiment was spoiled owing to the fact that an adequate honey flow failed to materialize. While yields were excellent in Central Alberta this year, the flow did not develop within a small area in the Edmonton district. The yard did not produce sufficient honey to winter the bees. Under the circumstances only general observations can be given.

(1) Yields in the yard varied from nothing to perhaps 70 pounds.

(2) The undivided check and package colonies varied most in yield.

(3) The highest individual yield was obtained from a colony that did not winter too well and was not divided. This colony was headed by a 1945 package queen from a first class breeder.

(4) On the average, the parent divisions yielded the most honey. Among the colonies wintered they were no doubt headed by the most vigorous queens.

(5) One of the divisions failed to store honey. The average production of the other five was higher than production for (a) non-divided wintered colonies and (b) package colonies.

(6) The only group of colonies in the yard that returned actual cash expended in 1945 were the new divisions.

Further explanation with respect to this yard is necessary. The performance of queens of the same breeding varies considerably and in a poor season differences are accentuated. (Queen trouble is associated with low honey yields.) The value of comparisons in my experimental yard this year was reduced owing to the fact that no less than seven strains of bees were represented. I was disappointed in the appearance of the package bees (two breeders represented) from the start. The source of my wintered stock varied. The queens introduced to the divisions were from a reliable breeder of undoubted repute. The question is, would comparative yields have differed had all queens been of the same stock?

At the actual outset, however, I had no intention of entering the experimental field. My only object was to "try it out". Perhaps next year I shall find it possible to add some of the refinements that come under the head of "experimental techniques".

Alberta, Canada.

National Auxiliary Meeting in Tampa

Members of the National Beekeepers' Auxiliary have a real treat in store at the annual Federation meeting in Tampa on January 15 and 16, 1947.

Mrs. M. C. Milton, Chairman of the entertainment committee of the Florida Beekeepers' Auxiliary, announces a reception of all ladies who attend the convention on Tuesday, January 14, from 3:30 to 5:30 P. M. at the City Recreation Center, 214 North Boulevard, in Tampa. All ladies are invited.

The National Auxiliary meetings and luncheons will be in the beautiful Tampa Terrace Hotel, across the street from the Hillsboro, Federation headquarters. Meetings will begin at 9:30 A. M. on January 15 and 16. We will see a colored movie on beekeeping.

The Tampa Federation of Garden Clubs will provide a speaker on Plants and Flowers of Florida and on flower arrangements. Mrs. Harriett Grace of the American Honey Institute will tell of the work of the Institute. Dr. W. W. Whitcomb, Jr., Division of Bee Culture, Baton Rouge, La., will show slides and tell of experiences growing azaleas and camellias. Most interesting will be a demonstration by Mrs. Walter Diehnelt, Wisconsin, on how to make beautiful ornaments out of beeswax. —Mrs. H. J. Rahmlow, President, National Beekeepers' Auxiliary.

The Bee Pasture Problem

By Frank C. Pellett

Editor Root raises what is probably the most serious question confronting the honey producer of today when he asks for a solution of the bee pasture problem. It is only necessary to review the changes in American agriculture that have come with two world wars to reveal how insecure is the position of the beekeeper who operates on a large scale.

Prior to World War I there were few large operators. A thousand colonies were regarded as a very large outfit and there were very few of them. The first world war brought a greatly increased demand for foodstuffs and especially for wheat. The vast wheat belt of the Northern Plains was just beginning to show a serious decline in its virgin soil fertility because of continuous cropping to wheat without rotation.

Red clover on which the Mid-west farmers principally depended as a source of nitrogen in the rotation was unsuited to the Dakotas. Sweet clover met the need and came into general use over a large area with great rapidity. Results were so satisfactory that sweet clover spread eastward into the corn belt and provided a vast new area of bee pasture.

In a region where few bees had been kept large apiaries sprang up and trainloads of white honey followed each other to eastern markets with surprising regularity. These vast fields of sweet clover brought yields of honey that sounded fantastic to beekeepers who were familiar with the moderate returns of older areas. Within a few years we found hundreds of beekeepers who counted their crops by carloads and their colonies by thousands.

Then came World War II. By this time the virgin fertility of the plains region had further declined and sweet clover had exhausted its boom possibilities. While food production remained important it failed to receive the emphasis that came with the first World War. The emphasis this time was on such items as hemp for fiber, soybeans for oil, and other crops that replaced sweet clover in the farm plan. In Iowa alone, several mills for processing hemp were built at a cost of several hundred thousand dollars each and thousands of acres were devoted to the production of hemp. Soybeans were increased by the millions of acres in Ohio, Indiana, Illinois, Iowa, and surrounding areas. The net result has been the disappearance of many of the large fields and pastures devoted to sweet clover.

A further change has come with the tendency to shorten the rotation when sweet clover is used and plow it under in the spring of the second year before it has a chance to come into bloom. Added to the changes brought about by the war has come the sweet clover weevil which reduces the stand by destroying a portion of the young plants and two diseases which further complicate the situation.

The beekeeper clung to the hope that this condition is temporary and that with the end of the war farmers would return to the former acreage

Chapman Honey Plant
Ephinops spaerocepholes
Picture taken at Pellett's Gardens, Atlantic, Iowa.
—By Jack Deyell

of sweet clover. Indications are that there will be only a partial return. Soybean acreage promises to be far greater than it was before. The shorter rotation will prevent the flowering of the sweet clover and insect and disease damage will continue.

Some Commercial Beekeepers Can't Find Pasture

All this adds up to insure that the big operator will have his problems in finding pasture for many years to come. On the other hand, the destruction of many of the wild bees on which agriculture formerly depended for pollination increases the demand for honeybees to provide this service and creates a public interest in the prosperity of the beekeeper.

The writer has been keenly interested in honey plants for 40 years. My little farm near Atlantic, Iowa, has served as a laboratory for such study during all that time and since 1937 the American Bee Journal has maintained a honey plant test garden there. Something like 500 different plants have been under observation in the hope of finding new and better bee plants. The results to date only serve to indicate how difficult the problem is and fail to offer any easy solution. Only a very few of the hundreds tried offer promise of substantial pasture for the bees. Some are too scant in nectar yield, some bloom at the same time as others which yield more freely, while there is no use to which others can be put to encourage their cultivation on such a scale as to be of value.

Some progress has been made along the following lines: First, the chance of finding pasture which is important to a large number of beemen must come through plants which come into general cultivation as sweet clover has done. Secondly, plants which can be successfully naturalized on unused land or waste land and which will not become noxious weeds offer possibilities in some regions. Thirdly, plants useful in the control of erosion which can be w i d e l y planted along highways should provide rather permanent pasture. Finally, special crops which serve limited markets will be helpful to the beemen in localities where they are grown.

In the first list we find the greatest hope in the work of the agronomists who are working to improve existing strains of sweet clover. They should receive every encouragement from the beekeeper.

Trifolium Ambiguum

We are also interested in a new clover which is perennial in habit and spreads by an underground root stock. This is **Trifolium ambiguum** which the Iowa Beekeepers' Association has asked the Secretary of Agriculture to name "Pellett Clover". This clover makes a wonderful growth in our test garden and seems very promising. It is too soon to tell much about its value, however, since we know little about its adaptation to soils other than ours. It makes a heavy root growth and seems especially promising for roadside planting where it can remain undisturbed. It promises well for both hay and pasture and the bees work the blossoms heavily when in bloom.

Anise-hyssop

We are much impressed with a wild plant called Anise-hyssop because it shows a resemblance in flavor to both the old world anise and the hyssop, although it is very different from either of these plants. It is a perennial which blooms over a very long period. Plants in our gardens flower from June until November and attract the bees in all kinds of weather. It is the only plant we have found which will compete successfully with sweet clover in its attraction for the bees and which blooms for a much longer time.

The Sioux Honey Association has provided funds to enable the Iowa Experiment Station to conduct an extended study of this plant in hope of finding a commercial use for it which will encourage its cultivation. Already it has been found to be the source of an essential oil similar to others now in common use.

Waste Land Devoted to Honey Plants

There are several plants which can be naturalized on unused lands which are likely to maintain themselves over a long period after once successfully established. Indications are that the beekeeper can do far more to stabilize his pasture than has been thought possible.

In most localities there it sufficient land growing nothing but weeds to stabilize the bee pasture if it could be devoted to useful honey plants. Much of this area would be so used if there was an organized effort to bring it about. The highway departments are planning roadsides for thousands of miles and would readily cooperate in the use of trees and shrubs which yield nectar freely if their attention was called to its importance. Lespedeza bicolor is a tall growing shrub that is long-lived and useful both as an ornamental and for the control of soil erosion. It blooms in late summer and is reported as the source of much honey in Japan. It is highly desirable for roadside planting. There is a very long list of trees and shrubs providing good bee pasture from which to select.

In many towns the garden clubs are starting clean-up campaigns to remove weeds from vacant lots and waste places and substitute ornamental plants instead. In such cases the beekeeper can get a lot of help to provide good bee pasture if he is on the job with suitable suggestions. Local associations can profitably make this a major objective and combine efforts with garden clubs, womens' clubs and other agencies which are interested in community improvement.

While such plantings are hardly equal to big fields of forage crops they all help and will go far to provide a measure of security to the local beekeeper.

The National Honey Plant Committee of which Dr. W. E. Dunham of Ohio State University is chairman is considering a program which can be recommended to research agencies to serve both agriculture in its need of bees and the beekeeper in his need of bee pasture. It is recognized that the experiment stations of the various states and the U. S. Department of Agriculture are the agencies most likely to contribute to the solution of the problem. Selection to secure heavier nectar yielding strains of the clovers, including sweet clover and alfalfa, is the most hopeful suggestion thus far made.

Sufficient progress has already been made to indicate that the job can be done but the beekeeper must have a program. The time has gone by when he can safely depend upon the chance actions of farmers in the area in which he lives.

Iowa.

Officers of Illinois State Beekeepers' Association

Left to right: Bud Cale, Vice-Pres.; Wesley W. Osborn, Treas.; Hoyt Taylor, Sec.; Ellsworth Meineke, Pres.; Foster Hanneford, Jr., Vice-Pres.; Harley Harris, Vice-Pres., Harley Walker, Vice-Pres.; and Walter Krebs, Vice-Pres.

Again We Have Found a Cure for Foulbrood—Or Have We?

By Lloyd C. Gardner

There are those who say that we have. But there are others who say no—regardless of the evidence to support the claims for the new found cure. It may be that the "Doubting Thomases" have lost faith in medicants and disinfectants because of the experiences in the not too far distant past.

This is not the first time cures for AFB have been discovered, nor will it be the last time. About 24 years ago we began to hear about the alcohol-formalin solution—later other formalin solutions. A few years later a method of disinfecting combs with chlorine gas was developed. Both treatments were used widely, but with varying degrees of success.

Then, as today, our journals were filled with stories of almost miraculous results. In every beekeepers' meeting these cures occupied the center of interest.

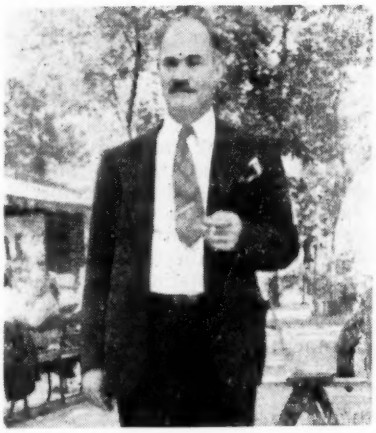
The facts were and remain that both these methods will destroy the organism **B. Larvae.** They could and can be 100% successful. But each in turn has been cast into the waste basket and charged to experience, because of one or both of two important reasons.

First: Allowances were not made for human error. It is a habit of a good many to not follow printed instructions, or recommendations. It followed, then, that high percentages of failures resulted.

Secondly: The costs of materials, labor, and losses were not taken into consideration.

Determining the costs in the alcohol-formalin treatments, the figures covering the disinfecting of 200 combs will be interesting. These follow and were taken from actual operations of a beekeeper in 1932.

2 men, 5 hours uncapping frames of honey and opening cells of brood 5.00
(after soaking 24 hours in water)
2 men, 4 hours extracting water and reinspecting combs for capped cells 4.00
(after 72 hours in A. F. solution)
2 men, 4 hours extracting solution and reinspecting for capped cells 4.00
(after airing two weeks)
2 men reinspecting, 3 hours . 3.00



Lloyd C. Gardner

renailing, etc., 4 hours .. 4.00
3 gal. solution lost in process 5.25
17 sheets of foundation to replace broken combs filled with hardened pollen 1.36

$26.86

Against this cost, we look to the cost of replacement of new frames and foundation.

200 frames 10.50
foundation, wire, and labor 17.50

$28.00

The cost of new equipment is $1.14 over the cost of disinfecting. Yet it is readily seen that these combs were considerably depreciated. The investment in them practically doubled. In addition, formalin hardens the wax making it very brittle and easily crushed or shattered, while its tendency to remain fixed over a long period of time, particularly in the wood of the frames, and the cells of pollen, renders them unsuitable for the bees, sometimes for months, often longer. Even then, portions of the combs containing pollen were usually torn down and replaced with drone comb.

The initial procedure in the chlorine method was practically identical with that of the alcohol-formalin treatment. The combs were uncapped (honey and brood cells), extracted, soaked in water for 24 hours; extracted again and placed in a wooden tank which was then filled with water over the top of the combs,

and into which was released clorine gas.

Trouble from this treatment developed as a result of the electrolysis set up in the solution. One of the early ways of obtaining clorine was with the use of copper solution soaked into bricks which were then heated in a kiln, driving off the gas. And since chlorine had an affinity for copper, it would attack the copper plating in the end staples, setting up the electrolysis which destroyed the frame nails and frame wire even though the wire was embedded into the midrib of the combs. The result was sagged combs which would break down in the extractor.

The final results were not satisfactory even though the method was 100% effective in controlling the infection.

In any method of treatment or medication, the greatest danger is from human error. With that taken into consideration, claims for success of any treatment must be weighed carefully. Whatever the method, it must be foolproof.

It follows that **the use of sulfathiazole fed in sugar syrup is not fool proof,** since its use involves the compounding of a medicant with a syrup, PROPERLY, and properly fed with the proper care of the patient during the course of treatment.

With B. Larvae, we are dealing with a most infectious organism. It must be regarded so and the utmost care must be exercised to prevent its spreading to healthy colonies.

In the alcohol-formalin and clorine treatments, many failures could be charged up to careless disposition of both contaminated honey and the water in which the infected combs were soaked.

With sulfathiazole, even though the combs are not removed from the brood nest but remain with the colony during the period of treatment, there is an equally great element of danger of spreading AFB, one which arises out of the feeding. Unless every precaution is taken robbing can result and may develop regardless of the best of procedure followed.

A second danger is with the colony itself. Suppose the colony to all appearance is of good strength, but that practically every cell of brood has broken down; also the population may be largely over-age bees, so that before it can reach a point where it is capable of replacing its old bees, it becomes too weak to defend itself. Weakened and with feeding that would encourage robbing, would it not fall an easy victim to robbers?

A third danger is in the harboring of diseased material which stands as a threat to healthy bees within flying distance, so long as it remains. As long as it is harbored there is a possibility that it may be thrown open in various ways and robbed out, adding unnecessary dollars in losses to the neighboring beekeepers.

As yet sulfathiazole has not proved 100% sure. Many colonies have been treated only to have to be burned up later.

Under this treatment, colonies will be held for long periods of time. Many of them so held will come into regular manipulations and many combs may be exchanged with combs from other colonies or they may become mixed in the process of extracting.

All these are pertinent points for consideration before we go headlong into another treatment for AFB.

From past experience, the reaction is most unfavorable, especially when it comes to throwing open for general use a treatment potentially as dangerous as this one. We are compelled to recognize the fact that even the most experienced err in their judgment at times. Even so, it is far better to entrust the treatment of diseased colonies to those who have charge of such matters within a state. And it should be policy to draw up regulations to that effect immediately if the treatment is to be used generally.

It is not intended by this article to condemn the use of any treatment for AFB, even though it is the writer's opinion that the solution rightfully rests with the geneticists. It is, however, the intention and purpose to point out the dangers in any and all treatments when used by the rank and file since with the average, the knowledge of medicine and chemistry has been overshadowed with the problems of beekeeping and honey production.

That foulbrood can be eliminated by selective breeding has been demonstrated most clearly from time to

(Continued on page 54)

My Method of Swarm Control on Carniolans

By A. V. Thomson

I have received so many inquiries regarding my method of swarm control that I believe an article on that subject may be of interest. In this article I shall endeavor to set forth the various manipulations (or those which affect swarming) that I have used for several years and which resulted in no swarms for both the years 1945 and 1946. The latter was a really bad year for swarming, especially for early swarms.

First, I would draw attention to our climate. Our winters are rainy, occasional zero weather, some snow every winter, our springs are "draggy", summers mostly dry with good warm weather (sometimes pretty hot) but nights are generally cool. This gradually merges into fall and we commence to get a little rain now and again in mid-August, showers increasing in frequency and volume until about October, when real fall weather begins, tapering off to winter.

Not a Good Honey District

The particular district where I am located is not a good honey district. We have a great deal of wind during the winter, cold, raw east wind which is at its worst during February and March. However, the bees are active all year and fly out every day that bees can fly and they breed more or less continuously. This requires an abundance of stores; a two-story Langstroth colony, ten frames to the story, will require at least 60 pounds of honey and 800 square inches of pollen to winter well. When the two-queen system of wintering is used, they need at least half again as much.

The early honey we leave for the bees. Our main crop comes from May 15 to July 1, or a few days earlier, then we let the bees keep the mid-summer honey which is not choice, and try for a late crop from August 15 to September 15, which we sometimes get. If we have any honey coming in later we let the bees have it and they always get quite a little pollen from hazel and filberts sometimes as late as December. This was the case in 1945 when the bees worked, at least part time, every month in the year.

A Blended Honey

Our early honey is mostly a natural blend which the bees prepare themselves, medium amber, fine body and flavor, making a very attractive comb honey. The late crop is mainly goldenrod, high quality amber, making a beautiful comb honey, but this crop is quite uncertain.

By comparing conditions in your own locality with the foregoing, you may be able to adapt the system which I use to your own use.

Why Do Bees Swarm?

They do so because they are crowded or because there are conditions in or about the hive that are offensive to them. Starvation, wax moths, annoyances of various sorts, all can and do cause swarming, but these swarms are not normal swarms. Through ages of evolution swarming has become a **part of the honeybee,** the same as four wings, six legs, etc., and if we destroy this instinct we destroy the very means by which the species is able to survive. So we must not **destroy,** but **control** the swarming instinct by proper manipulations, having the bees "swarm" when and as we want them to. That is what I try to do, and the following description of the year's work in this line is the system I use and have used with great success for several years.

(1) In the latter part of June, after the early honey flow, I divide, having ordered queens for the new divisions, to be delivered July 1. If you prefer to raise your own queens, as I do, start early enough so that you can make divisions and have the queens mated by July 1. When dividing, simply set the old hive over half its width, the new one by the side; divide the brood and stores, being certain which division contains the queen. Introduce the queen or a ripe queen cell you have reared into the queenless division; let the bees mix at will, they will attend to everything else. Place a deep super on top of each and a queen excluder under the super.

The next step is due about August 15, when the supers for the fall honey are put on. I use the shallow

extracting super, meanwhile keeping watch for any queen cells and destroying them.

About September 1, remove the honey supers and prepare the bees for winter. Now comes a real trick and I find it a very good one. Your divisions are now all good colonies, sitting in pairs each with a queen excluder under its super. Remove the cover from one of these, a parent hive, lay a sheet of paper on top of the super, leaving it otherwise as it was, punch a few pencil-size holes in the paper, take off the super from the division, put the main colony of this division on top of the queen excluder, and on the top of all put a half super of stores. Bore a hole in the front hand hold of the deep super. If no shallow super is available in which there is honey, use one with empty combs and feed the bees honey enough from the deep super which was removed to fill the combs. Here they can generally fill them with nectar and pollen they gather. Store the removed deep super in a vermin proof place.

Now what have you when all your colonies are prepared in this manner? All your queens for next season and all your spring divisions are ready to set off as "going concerns" in the spring. Nice, if it works. Well, it does, and beautifully. The bees soon gnaw the paper away, mix up and use both entrances and stores jointly.

We do not pack hives, but if you pack you need higher cases, but only half as many. Your bees will need no further attention until spring except a little looking over and watching for emergencies.

April 1 and your bees have come through in fine shape, no queens to be ordered. Now just set off the top colonies and equalize the stores between the two, setting the colonies side by side after moving the bottom one over half its width. Now get a deep super from among those you stored last year and put on top of each colony. If you find the queen in the shallow top super, place her below and put a queen excluder on top of the deep super. When the young bees emerge remove the shallow super and store it away. **Do not use a queen excluder between the main colony, either parent or new colony. The queen will need two stories for her brood.** Inspect the colonies every ten days at least and destroy all queen cells. If the colonies really are in danger of swarming, or in any possible danger of it, place a queen excluder on top of the crowded colony and a deep super on top of this.

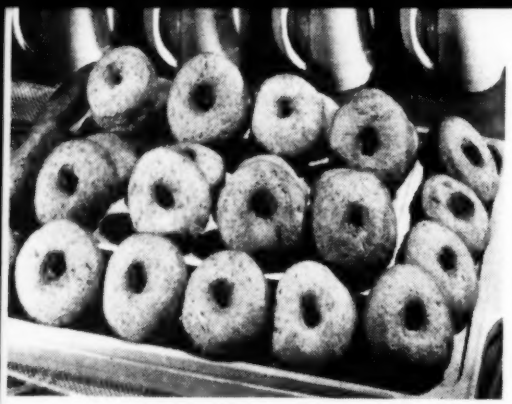
By May 15 the colonies will be **good and strong.** If a colony seems to be getting too strong, even with the third story, remove this third story, remove a frame or two, and in place give the bees a frame or two of brood with some eggs present. Shake most of the bees into the bottom two stories, leaving a couple of pounds or more (use judgment). Put this super on a stand some distance from the colony from which it was taken. Stuff the entrance tightly with grass and keep the bees inside the hive two or three days; then, in the evening, remove the grass if the bees have not already done so. The bees will find their way around, rear a queen, and build up to a roaring colony ready for the late honey flow. Do not do this unless the colony is really getting too populous; otherwise remove the top super, leaving the queen excluder in place and brushing all the bees into the remaining two stories. Then put on your honey supers, removing as filled.

During the latter part of June have things in readiness so that any queens you raise will be ready, mated, and laying by July 1. If you decide to purchase queens for July 1 divisions, order three or four months ahead of time. Get all your divisions made by July 1. Then you start all over again, as above set forth.

Keep constant watch for queen cells; do the work required on time, a little ahead if possible. If necessary, take out a few bees and start a new colony, as previously stated.

Take good care of your bees. They are valuable property. The best workers you can possibly employ, work for nothing, board themselves, and actually pay you for the privilege of working.

Oregon.



Honey Resolutions

By Mrs. Benj. Nielsen

Serve honey bran doughnuts with mugs of steaming hot honey-sweetened coffee or cocoa.—Photo courtesy Kellogg Co.

Located on a very busy main highway, our business identified by a large, impossible-not-to-notice sign, beekeepers and honey dealers from states near and far stop in to exchange greetings and compare notes. Really it is amazing how few of these callers make use of honey to any appreciable extent in their diets! Few use it as the Nielsens do! Some use it as a topping or spread for bread, hot biscuits, and waffles. If you belong to this class why not make a new year's resolution to start using honey in a really big way? Once made it is the easiest of resolutions to keep—fun and good eating, too!

Don't know how? Afraid to experiment? As a starter try honey sweetened cocoa; use it to sweeten those baked apples; sweeten that next batch of applesauce—adding a few bright red cinnamon candies for an additional tangy flavor. Try it in your tapioca and plain gelatin concoctions, remembering that honey is about 25 percent sweeter than sugar, so you will use less honey, and that honey also flavors as it sweetens. There are some delightful taste treats in store for you, I promise.

Surely each and everyone of the beekeeping fraternity should show faith and pride in his own product by being a steady and ever increasing consumer. Resolve now! Set the good example for neighbors, friends, and customers! Pass your findings along. When you have graduated from apprenticeship on the above fool-proof starters try your hand at these:

Honey Bran Doughnuts

One cup bran, ⅔ cup sour milk or buttermilk, 2 eggs, ⅔ cup honey, 3 cups sifted flour, ½ teaspoon soda, 1¼ teaspoons salt, 2 teaspoons baking powder, 1 teaspoon nutmeg, and 3 tablespoons melted shortening.

Soak bran in milk. Beat eggs until light, then beat in honey. Add soaked bran. Sift flour with soda, salt, baking powder, and nutmeg. Add one half of sifted dry ingredients to first mixture. Stir in shortening. Add remaining flour, stirring only until flour disappears. Roll out dough one half inch thick on lightly floured board and cut with floured doughnut cutter. Fry in deep fat, turning each doughnut as it comes to the top. Turn again to brown the top. Drain on absorbent paper. Roll in powdered or granulated sugar if desired. Yield: 1½ dozen doughnuts (3 inches in diameter).

Honey Sour Cream Dressing

One cup vinegar, 1 cup water, 2 tablespoons flour, 1 teaspoon mustard, 1 teaspoon salt, ⅓ cup honey, 4 eggs (well beaten), and 1 cup thick sour cream.

Heat vinegar and water. Add dry ingredients to beaten eggs and honey, mix until well blended. Stir vinegar gradually into egg mixture. Cook in top of double boiler until thick, stirring frequently. Remove from heat, cool. Stir in sour cream Chill. Makes one quart.

Honey Apricot Whip

Soften 1 tablespoon plain gelatin in ¼ cup cold water. Heat to boiling point ½ cup apricot syrup, add ¼ cup honey and ¼ teaspoon salt, stirring until dissolved. Then add 1 cup mashed canned apricots and 2 tablespoons lemon juice. Chill. Beat 2 egg whites until stiff. When mixture begins to thicken fold in egg whites and pour mixture into large or individual molds that have been rinsed in cold water. Chill until firm. Unmold and serve with

(Continued on page 58)

Conference of Fruit Growers and Beekeepers on Relationship of Spray Programs to Mortality of Bees Used for Pollination

Warren Hall - Ithaca, New York, November 7, 1946

[This report sent by Howard Myers, Ransonville, N. Y.]

Called to order at 10:30 A. M. by Chairman Herman Kappel who stated the purpose of the Conference as being that of discussing the mutual problems of fruit growers and beekeepers in the fruit spray programs. He stated that fruit growers are dependent on bees for pollination purposes and that their spray program should be such as to cause no practical loss of bees.

Those attending the meeting were as follows: New York State Horticultural Society: Herman Kappel, T. E. LaMont, Howard Myers; Empire State Honey Producers' Association: Harold Merrell, Burel Lane, Carl F. Case; New York State Farm Bureau Federation: Don J. Wickham; New York State College of Agriculture: C. E. F. Guterman, Charles Palm, J. E. Dewey, R. L. Patton, E. J. Dyce, L. M. Massey, M. B. Hoffman; New York State Agricultural Experiment Station: A. J. Heinicke, Hugh Glasgow. P. J. Chapman; New York State Department of Agriculture and Markets: A. C. Gould; Western New York Beekeepers: Ray Gutekunst. Also present were Ralph G. Palmer, Monroe Assoc. County Agr. Agent, and C. K. Bullock, Associate Secretary, New York State Farm Bureau Federation.

Chairman Kappel called on C. E. Palm to lead a discussion of the various fruit spray programs and materials on fruit. Following is a summary of this discussion:

E. J. Dyce—The extensive use of lead arsenate on the part of fruit growers has caused commercial beekeeping to move out of intensive fruit areas. This has necessitated the moving in of bees during bloom for pollination purposes particularly in Western New York and the Champlain and Hudson Valleys. He pointed out that the use of arsenicals in dust are more disastrous to bees than in sprays because of the fact that dust drifts and does not stay where put.

A. C. Gould—has observed that dusting is more damaging to bees than spraying because of the drift to other crops.

Howard Myers—in discussing the time of applying the petal-fall spray pointed out that McIntosh very frequently will yield nectar for a full day after the petals have dropped. Therefore, there is great danger of poisoning bees with arsenicals on this variety where the application is made immediately after bloom.

Ray Gutekunst—pointed out that the application of arsenicals before bloom is sometimes very disastrous to bees.

C. E. Palm—pointed out that research workers are greatly concerned with this problem and are working for a spray schedule which would eliminate the use of arsenicals before bloom.

Hugh Glasgow— stated that it is possible to eliminate arsenicals in preblossom sprays but pointed out that it is the habit of many fruit growers to use arsenicals in preblossom sprays and wondered if they would follow a spray schedule which did not call for it.

P. J. Chapman—stated that well-cared for orchards would probably yield high quality fruit with prebloom arsenicals omitted.

J. E. Dewey—stated that many growers have over a five-year period used a spray schedule with no arsenicals in prebloom applications and have obtained good results after the use of a dormant "clean-up". This year's recommendations are to have arsenicals deleted from preblossom applications and that in case of emergency DDT would be recommended. The first application of an arsenical would be in the petal-fall application.

P. J. Chapman—suggested the possibility of an agreement between fruit growers and beekeepers regarding the use of arsenicals before bloom.

E. J. Dyce—pointed out the definite decline in native wild beneficial insects in orchards sprayed with arsenicals. DDT does not seem to be disastrous to bees in a commercial way if it is applied correctly before the blossoms open. He stated that when bees work in an orchard they touch only the flower parts and that they do not come in contact with the DDT which has been applied before the blossoms open.

Where DDT is applied on the pollen it is detrimental to the colony when the pollen is stored.

Earl F. Case—stated that some of the county farm bureaus have published news articles asking growers not to spray with poisonous materials while fruit is in bloom and also pointing out the existing law. He stated that this publicity has been very effective in those countries and suggested publicity on the spray program omitting arsenicals in preblossom applications.

L. M. Massey—commented on the problems of disease control as well as insect control in the spray program. He emphasized the importance of sharp timing and stated that there are times when conditions make a bloom application desirable. A relatively new material known as "fermate" is highly specific against rust and is being used in the Hudson Valley. In the discussion that followed relative to this material it was pointed out that what little evidence there is indicates it is toxic to bees but that one grower has been using it for five years without bad results on bees. It was the concensus of the conference that more information should be discovered relative to the use of this material and its effect on bees, as well as the use of other new fungicide materials.

Earl F. Case—suggested that more needs to be done about the toxicity or various materials to bees before they are recommended by the Extension Service.

A. J. Heinicke—pointed out that the prebloom and bloom period is often a critical one from the standpoint of controlling scab. He suggested the possibility of using a fungicide during the bloom period which would not be toxic to bees and would not injure blossoms.

Ray Gutekunst—stated the two greatest problems of beekeepers in relation to spraying are the use of arsenicals in preblossom applications and rushing to get on the petal-fall application containing arsenic.

Earl F. Case — stated that he would hate to see the recommendation made for any spray application while trees are in bloom for fear that a toxic material might be included even though it were not recommended.

This concluded the formal discussion of arsenicals and the group adjourned for lunch.

Following lunch the discussion turned to the use of DN sprays and hormones for the purpose of reducing alternate bearing by reducing set of fruit for the prevention of drop, etc.

A. J. Heinicke—pointed out that the interest of fruit growers would be served if bees were available that would fly in the wind at lower temperatures. He pointed out the necessity of bees for pollination but stated that fruit growers may get too heavy a set of fruit in some years making it necessary to limit the set because of the expense involved in hand-thinning. Some materials show promise by eliminating poorly pollinated fruits when such materials are applied after bloom. If such materials could be developed fruit growing would make great strides.

M. B. Hoffman—discussed blossom thinning materials and the work which he has done during the past several years on such materials. The original work was done with such inorganic materials as sodium nitrate, copper sulphate, etc. Then came the organic materials, the most promising of which was DN. This material is used in as dilute a solution as possible in order to avoid foliage injury and still kill the blossoms which are open at the time of making the application. He pointed out the necessity for exact timing in making these applications.

It seems that some of the hormones that hold apples on the tree later in the season promote abscission when applied soon after the bloom. Thus they hold promise for thinning apples when applied shortly after bloom. However, these materials will not cause the drop of peaches.

R. L. Patton—has been doing considerable work on the toxicity of DN to honeybees and discussed the results obtained. He pointed out that DN is toxic to bees and that it is possible for a bee to drink enough material in a concentration used for spraying, to be lethal. He discovered that the DN residue remaining on the leaves after it is dried is water soluble and toxic. DN used to spray trees is not repellant to bees. There is no danger of pollen or honey contamination of DN. Bees will take DN from trees which have

been sprayed and humidity appears to have no effect. Bees which take DN increase greatly their rate of oxygen metabolism and burn themselves out. A bee with a lethal dose will fly for no longer than approximately ten minutes.

E. J. Dyce—stated that he has yet to see any serious loss of bees around a colony from DN. In spraying an orchard with DN the bees are frightened away but begin to come back as the trees dry and appear to work even more intensely. From observations which he has made, bees working in an orchard at this time seem to be only nectar gatherers. This may be true because of the increased flow of nectar caused by DN injury to the flower parts. He feels that DN does not contaminate the nectar. He pointed out that DN applications seem to dry up the pollen and make it unavailable to bees. He has noticed no great loss of bees through the use of DN and that in some cases colonies in orchards sprayed with DN gained in weight. In a collection of bees from apples sprayed with DN as compared with bees gathered from dandelions not sprayed he saw no significant difference in the rate of mortality while being fed sugar syrup for 96 hours.

Burel Lane — would like to see more field work done on the effect of DN on bee mortality.

M. B. Hoffman—stated that Wealthy and Baldwin are the principle apple varieties which would benefit from fruit-thinning sprays of DN.

Ray Gutekunst — stated that he had colonies of bees in a ten acre orchard of Wealthies sprayed with DN and could see no damage.

Harold Merrill — stated that he was not afraid of DN.

M. B. Hoffman—stated that fruit growers fear foliage injury as much as beekeepers fear damage to bees, that spraying will not be done indiscriminately and only in cases where it is absolutely needed for thinning.

Earl Case — suggested that the College and Extension Service could give to growers scientific data obtained on the use of DN sprays and to point out that it is illegal to spray fruit with poisons while they are in bloom and that presentation of the scientific data is not a recommendation. Many more bees are killed by preblossom arsenicals than by DN and that real progress is being made when arsenicals are removed from preblossom applications.

Howard Myers—stated that there has been great improvement in fruit growing in the past 30 years—that better fruit is being obtained and that there is less poisoning of bees.

Earl Case—complimented the College and Experiment Station workers on the way in which they have gone about this problem and stated that the reports given by these men were fair and highly enlightening.

After considerable discussion by all those present, the following recommendations were drawn up:

1. Removal of arsenicals in preblossom sprays.
2. Prepare publicity on the fact that it is neither legal nor advisable to spray with arsenicals or DDT during bloom.
3. That the chairman appoint a committee to draft a proposed change in law and to circulate this proposal among the various organizations for their consideration and that this group meet again within the next year to consider this matter.
4. That the College and Experiment Station conduct adequate research on all new spray and dust materials and their toxicity to beneficial insects.

Chairman Kappel appointed the following committee as recommended in 3. above: Earl Case and Burel Lane representing Empire State Honey Producers Association; T. E. LaMont and Howard Myers representing the New York State Horticultural Society; Horace Putnam representing the New York State Farm Bureau Federation. Mr. Kappel will act as chairman of the committee. The Federation office will be a clearing house for the exchange of information.

Adjourned at 4:25 P. M. —C. K. Bullock, Secretary.

* * * * *

The University of Illinois short course on beekeeping will be given Jan. 27-29 with Dr. V. G. Milum, Carl E. Killion, and G. H. Cale, Editor American Bee Journal, as lecturers. Requests for copies of programs should be mailed to V. G. Milum, 104 Vivarium Bldg., Champaign, Illinois.

Annotations

By Prof. A. Z. Abushady
United Nations, N. Y.

Prophylaxis Against AFB — Mr. Newell's article emphasizing that resistance does not mean immunity (p.660) is one of the most practical contributions that I have read on the subject of combating AFB. I believe, from studying the mass of data available, that many experienced beekeepers will agree with his statement that beekeepers located in areas where AFB is common might find the feeding of sulfathiazole of great value for fall and spring feeding, provided they are particular in using resistant strains. This logically scientific combination is called for on a large scale. But what remains to be elucidated by our experiment stations is the rational way and the minimum dosage to be employed for ensuring adequate protection, so that AFB may become in the non-distant future a mere academic disease. Should scientific results justify, legislation for ensuring mass protection, in the interests of the industry and with the object of its salvation, might be reasonably called for.

Drone More Important than Queen —Mr. Oplinger's article (p. 659) is truly refreshing. In my book "At Random—Thoughts on Humanism" (1937), I questioned in the chapter on the breeding of mankind the adverse influence of inbreeding. In pigeons particularly, I have found inbreeding advantageous. From the days of Ancient Egypt inbreeding was not thought harmful and comparatively good-tempered Egyptian bees are the result of selective inbreeding, contrary to our former notion. In practice, we attach special importance to the drone. Ordinary Egyptian virgins mated to selected Carniolan drones yielded highly satisfactory workers. In the light of this experience some Carniolan stocks are kept in modern Egyptian apiaries, amongst other stocks, chiefly for the sake of flooding the apiary with Carniolan drones whilst eliminating them from the common stocks as far as possible.

An Efficient Wax Melter—the wax melter described and illustrated by Mr. B. M. Crawford is interesting (p. 674). However, it may be of interest to mention that in a number of tropical and subtropical countries (and I refer to Egypt in particular) the fork and not the knife is the implement used in uncapping and the solar melter is the favorite if not the only one in use. It melts, sieves, and bleaches in one or two operations and at no cost to the beekeeper, thanks to the influence of the sun.

Winter Care—Commenting on Mr. Lacey's note on keeping bees in Northern New York (p. 678), I would mention that his remarks support my decision not to have hives on the ground and to avoid outside paper packing which may encourage dampness and mold growth inside the hives, to the detriment of the bees. In Long Island the winter is not so sharp as to justify making top entrances as well. And as to protection from the wind, apart from the screened site, I am content with using wood paste where space exists between the hive bodies. This is quite clean and is easily removable by the beekeeper when desired, but not by the rain; and furthermore it is quite cheap and handy, as it is sold in powder packages and when mixed with water is ready for use at any time.

Drouth Resistant Honey Plants— One of the best is perhaps the prickly pear. This is widely spread in many African and Oriental countries. It is equally available in the Southern states. Its fruit (particularly the American select varieties) deserves greater attention and popularity. Economically, it highly pays its grower in addition to being an excellent bee plant, both for honey and pollen.

OUR COVER PAGE

A buckwheat and sage location near Elsinore, California This particular apiary had a close brush with fire. The fire started from a burning truck on the nearby highway. It swept toward the apiary (note burned area in foreground), but was put out in the nick of time by fire rangers.—Clarence Tontz.

Live and Learn

By Propolis Pete

In last month's Gleanings, I started in on bee diseases. I said that they should be respected, but not feared. I say that again. If a fear of disease is holding you back, or giving you funny feelings, calm down.

For one thing, it has been pretty well established that there are various degrees of resistance in honeybees to brood diseases, ranging all the way from strains that almost seem to create their own troubles to others that actually clean out the foul combs and go about their business as though there were nothing unusual about it.

You hear but little about the type of disease called European foulbrood, because it was soon learned after the importation of Italian queens that this race was not only highly resistant but actually seemed immune. It crops up once in a while, but you hear little of it.

It was found some years ago that the type of disease called American foulbrood also could be controlled to a certain extent by breeding a strain that was actually resistant to it, but nowhere to the same extent that seemed to apply in the case of the European type. Nevertheless, certain strains did clean it up. The problem with perpetuating this strain is the difficulty of control of the mating of the queen bee. It can be done with artificial insemination, but so far this is not practical for commercial purposes. Besides, as soon as the queens supersede in your yards, they are right back to nature's way of controlling the breed.

Recently a new treatment using sulfa drugs was discovered, and early experience indicates a howling success. But whether or not it will be just as successful in future years remains for the future to show. So far it looks to me that it will continue to be a success, providing the resistance element doesn't backfire and work up a resistant foulbrood bacillus.

So, start your bees and watch them carefully. If you notice anything out of the ordinary, find out what really is the matter. Don't do as I did, and wait a couple of years before the idea dawns on you to get expert advice. There are plenty of people who can give you honest advice about what is wrong—your beekeepers' association, neighboring beekeepers (providing they are good beekeepers), or at any rate your State inspector. If, after finding out what is really wrong, if the worst has happened to you, and you have not made the mistake of spreading out too fast, start a bonfire. When you know what it is all about, then you can try the cures.

The main thing to remember is the golden rule. If, after your bees have caught something, you lose interest in them, don't let them just peter out by themselves. Destroy them. But make sure first that your diagnosis is right, and don't fool around with them for so long that they will weaken and be a menace to the rest of the countryside. If you fool around until they are too weak to defend the hive they will be robbed out. Then the fun will begin for your neighbors. If you have no nearby beekeeping neighbors. there are surely some wild bees around you. They will rob you out, in turn die, then be robbed out themselves, and eventually your troubles will be felt for many miles around.

Maybe it's off the subject, but with combs stored away, the wax moth can be as bad as a disease. Those ornery varmints can do as much harm as foulbrood if given the chance. You don't have to give them the chance. They make their own opportunity. The year that I got wiped out, I stacked the supers of combs until I could get the chance to clean them up, and make up my mind what to do with them. The moths made up my mind for me. A hundred and twenty riddled combs were shipped for rendering.

Freezing weather seems to kill the moths, the worms, and the eggs. So, in any weather except freezing, your combs should be protected. The simplest and best way is to stack the hive bodies bee and mouse tight, then throw in a handful of PDB crysta's (paradichlorobenzene) obtainable at all house furnishings stores, drug stores, or department stores under different trade names and for different prices. It doesn't smell bad, isn't dangerous, and does the trick in fine shape.

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You hear but little about the type of disease called European foulbrood, because it was soon learned after the importation of Italian queens that this race was not only highly resistant but actually seemed immune. It crops up once in a while, but you hear little of it.

It was found some years ago that the type of disease called American foulbrood also could be controlled to a certain extent by breeding a strain that was actually resistant to it, but nowhere to the same extent that seemed to apply in the case of the European type. Nevertheless, certain strains did clean it up. The problem with perpetuating this strain is the difficulty of control of the mating of the queen bee. It can be done with artificial insemination, but so far this is not practical for commercial purposes. Besides, as soon as the queens supersede in your yards, they are right back to nature's way of controlling the breed.

Recently a new treatment using sulfa drugs was discovered, and early experience indicates a howling success. But whether or not it will be just as successful in future years remains for the future to show. So far it looks to me that it will continue to be a success, providing the resistance element doesn't backfire and work up a resistant foulbrood bacillus.

So, start your bees and watch them carefully. If you notice anything out of the ordinary, find out what really is the matter. Don't do as I did, and wait a couple of years before the idea dawns on you to get expert advice. There are plenty of people who can give you honest advice about what is wrong—your beekeepers' association, neighboring beekeepers (providing they are good beekeepers), or at any rate your State inspector. If, after finding out what is really wrong, if the worst has happened to you, and you have not made the mistake of spreading out too fast, start a bonfire. When you know what it is all about, then you can try the cures.

The main thing to remember is the golden rule. If, after your bees have caught something, you lose interest in them, don't let them just peter out by themselves. Destroy them. But make sure first that your diagnosis is right, and don't fool around with them for so long that they will weaken and be a menace to the rest of the countryside. If you fool around until they are too weak to defend the hive they will be robbed out. Then the fun will begin for your neighbors. If you have no nearby beekeeping neighbors. there are surely some wild bees around you. They will rob you out, in turn die, then be robbed out themselves, and eventually your troubles will be felt for many miles around.

Maybe it's off the subject, but with combs stored away, the wax moth can be as bad as a disease. Those ornery varmints can do as much harm as foulbrood if given the chance. You don't have to give them the chance. They make their own opportunity. The year that I got wiped out, I stacked the supers of combs until I could get the chance to clean them up, and make up my mind what to do with them. The moths made up my mind for me. A hundred and twenty riddled combs were shipped for rendering.

Freezing weather seems to kill the moths, the worms, and the eggs. So, in any weather except freezing, your combs should be protected. The simplest and best way is to stack the hive bodies bee and mouse tight, then throw in a handful of PDB crysta'ls (paradichlorobenzene) obtainable at all house furnishings stores, drug stores, or department stores under different trade names and for different prices. It doesn't smell bad, isn't dangerous, and does the trick in fine shape.

From the Field of Experience

Toads Learn from Experience to Let Bees Alone

By Claude Saunders

In September Gleanings, page 502, you have an item on "A bee-eating toad" in the "Asked and Answered" department. The following extract on this subject from a new book "Animal Camouflage" by E. M. Stephensen and C. Stewart, may be of interest to you and your readers:

"W. B. Cott carried out a very thorough and interesting series of experiments on toads with regard to their eating of honeybees. Beekeepers sometimes find that a toad locates itself near the alighting board and accounts for large numbers of bees. Thirty-three toads were used in the experiments, and the behavior of each one recorded separately. Each toad, hungry because it had been without food for some days, was placed in turn on the alighting stage of a hive. It snapped up a bee, and, if stung, closed its eyes and gulped and soon crawled to the edge of the stage and jumped off. It was replaced and its behavior again watched. Ten of the 33 toads avoided bees entirely after the first unpleasant experience. Others took up to five days before they refused even to attempt to catch a bee; by this time they showed evident signs of fearing the insects. Thus the speed of learning varied considerably with individual toads. However, once the lesson was learned it was not forgotten, for when a fortnight later the toads were again placed on the alighting stage, they either avoided the bees at once or after far fewer trials than before."

For your information, "Animal Camouflage", from which the above has been extracted and quoted, is published by Penguin Books, of Harmondsworth, England, and 245 Fifth Avenue, New York.

England.

Proper Time to Gas Bees

By Harry Brown

On page 610, November, 1946, Gleanings, Percy H. Wright mentions a sticky mass of bees to be brushed off the combs after killing with gas. With my method I have no trouble of that kind.

Put three or four tablespoons of Cyanogas on a piece of cardboard and slip it under the combs; close the hive five or ten minutes and the bees will all drop off the combs leaving them clean and dry. I wait until all brood has hatched and the winter cluster of bees has formed. If it is cool enough to keep bees from flying, so much the better—then you will not need to be careful of robber bees. Here the middle of November is a good time. I have never found that temperature affected the use of the gas. Probably Mr. Wright used it when the weather was warm and the bees scattered all through the hive.

By my method you will find the bees piled neatly under where the cluster was formed and there will be no stickiness on bees or combs.

Illinois.

[In our opinion bees should be Cyanogassed before they cluster too tightly, due to cold weather, or some bees will have their heads in the cells, in which case they will remain in the cells when the gas strikes them.—Ed.]

Toads Destroying Bees

By Chapman Grant

The September "Asked and Answered" column has a note about toads eating bees. I feel sure that the toad does not select drones, but I would like to have some bee-eating toads to examine. If anyone finds a toad gorged with bees, please put it in a bottle of 10% formaline and mail to me. I will classify the toad and examine the stomach contents and publish the results. I will refund the postage. Mail to Chapman Grant, 2970 Sixth Ave., San Diego, California.

What is a Saltspoon?

By Allen Latham

I have been rather surprised at getting postcards and letters asking me what a saltspoonful is. I cannot myself recall how long ago I became familiar with it—probably from my mother's rules for cooking.

A saltspoonful is one fourth of a teaspoonful.

In my work with sulfathiazole I never actually measured the amount of the drug I used. I myself am a fairly skillful cook but seldom actually measure anything, having an eye for quantity and number not possessed by everyone. I simply pour out a little heap of the drug on a piece of paper.

I have been experimenting and find that if one pours salt upon a nickel until it runs off all around and then carefully pours the salt into a saltspoon it will just about fill the spoon. I would suggest that this is rather more than is needed and I find that I have been using less than a saltspoonful in my actual practice. What can be heaped upon a penny is closer to the amount I have been using.

As a matter of fact it is immaterial whether one uses more or less than this amount, except that it is wasteful to use more than is needed.

Connecticut. ,

600 Pounds Surplus from Two Colonies

By Capt. Charles A. Hill

Two years ago somebody's swarm of Italian bees landed in an olive tree in my back yard. I retrieved them and became interested in their activities.

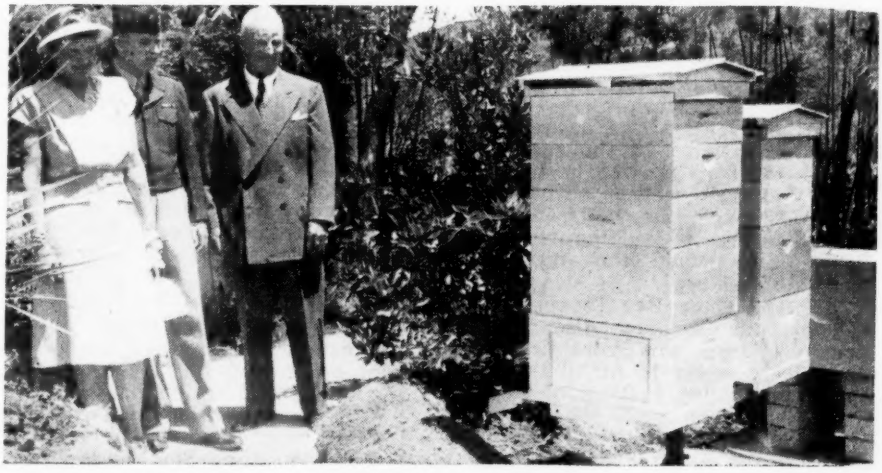
They were remarkable insects and generous in giving my family and friends more than a quarter of a ton of honey within six months.

From March 1 to August 15, 1946, I took from the two hives in the picture below 128 shallow frames of fine honey all full and capped. The average weight was about five pounds a frame.

Now, to you experienced bee men 600 pounds of honey from two hives is not remarkable but it seems like a lot of "dulce" to me. One colony swarmed in June, which swarm I retrieved. You will notice that the hives are on a heavy platform which revolves on a five-inch iron pipe sunk four feet permitting regulation of sunshine at the entrance at different seasons. A can containing oil is soldered to the pipe to exclude ants.

Nearby large eucalyptus trees, back yard citrus trees, flowers, and wild sage seem to afford the forage. No rain from March to October.

California.



Capt. and Mrs. Chas. A. Hill, and son, Lt. Hughes Hill, in their back yard apiary.

Introducing Queens by the Onion Method

By Milo E. Bloss

In regard to introducing queens with peppermint oil, about 30 years ago my father would introduce queens by killing the old queen and then cutting three or four slices of onion and putting the pieces on top of the frames under the cloth and cover. Then within three or four hours when the new queen is introduced, rub a piece of onion on the side of the cage just a little and then release the queen in the entrance of the hive. I'm wondering if anybody has ever tried this method. We used to keep 300 hives of bees which made it necessary to introduce queens each year. My father's name was F. D. Bloss, of Swartz Creek, Michigan. I would like to hear from somebody who has tried this method.

Clio, Michigan.

This and That

By Haskell D. Ferguson

Late last summer we had an experience very much like the one related by Mr. Arrington on page 467 of the November, 1945, Gleanings, except that ours was clearly a case of supersedure. However, the reason the bees replaced the fine young queen could not be determined.

[Mr. Arrington tells about finding a young laying queen, and a queen he had intoduced, about 30 days after introducing the queen. The young queen had emerged from a cell started after the other queen was introduced.—Ed.]

Queen Cells that Appear After a Queen is Introduced

Many times we have found completed queen cells when looking to see if a queen had been accepted. If the newly introduced queen was doing good work we have, except in one instance, paid no attention to these cells and never knew a virgin to be lucky enough to emerge from one of them. We believe the disturbance incident to making a thorough search and destroying all cells may cause the workers to ball the queen which they have accepted only on probation. In the case mentioned, the bees showed hostility toward their step mother, so we caged her, destroyed the cells, and arranged for her to be liberated a few hours later when the excitement had subsided.

The Cone Bee Escape

The cone escapes discussed in previous issues are great time savers. It is easier to make these escapes triangular instead of square. They should be made in two sizes, the larger ones being big enough to fit over the small ones with about ¾ of an inch of space between the two. When robbers learn to go in and out at the exit, a large escape can be fastened over a small one. When the most persistent robber finds she is between two wire cones she is completely baffled and soon gives up in disgust.

Be Sure Queens Are Not in Supers

About 15 years ago we used one of these escapes to remove the bees from the supers of a small apiary some 10 or 15 days after the close of the sourwood flow. Later we learned that the queens from three of the colonies had disappeared at about the time the honey was taken. The queens were young and we could not attribute their loss to natural causes. We reached the conclusion that as the honey flow had ceased and egg laying subsided, the queens were using their leisure time to explore the supers, and through a coincidence had been caught in the supers when the escape was applied. They became excited, we reasoned, when they learned they were cut off from the brood nest and passed out of the cone with the workers, and being clipped failed to make their way back into their respective hives. Since this experience we have made sure that the queen was below when the escape was put on and have not had any more trouble of this kind.

Position of Upper Flight Hole

Our apiary faces the East. The colonies are wintered in 1½ story hives, eight of which have been in use 26 years or longer. Numbers on the brood chambers have caused us to keep the same ends of the hives in front. During the years

the bees have gnawed at the thin places above the tin rabbets in the northeast corner of four of these old hives until they have good sized flight holes there. In the fifth hive a flight hole has developed in another location, but a dotty place in the wood is due, in part at least, for its existence.

Why have the bees shown this preference for an upper flight hole in the northeast corner? In our opinion it is to avoid the cold draft which would strike the cluster formed above the entrance just a little south of the center of the hive. With a flight in the center of the food chamber, where we bore it with a bit, the draft goes in at the entrance, strikes, and chills the front part of the cluster before passing out at the hole. But with the hole in the cold corner in front where the bees make it, the draft veers to the right almost missing the cluster, yet giving all the advantage of an upper flight hole.

If this theory is correct we believe that with hives facing South the provision for additional ventilation, if made by the bees, would appear at the upper southwest corner of the brood chamber.

Tennessee.

[We prefer having hives face South, especially in the North, because the winter cluster is usually found at the front of the hive above the entrance. This being the case, bees can get out for a cleansing flight easily. An upper flight hole near the Southwest corner may be an advantage.—Ed.]

Easy Way to Darken Bee Shipping Cage

By J. R. Derby

The discussion between Mr. Root and Mr. Latham concerning the design of shipping cages for package bees was most interesting. The following plan may answer most of the objections raised by each of the other's system.

Why not simply wrap the cage with a piece of heavy wrapping paper that is not quite as wide as the cage is high, thus leaving about an inch at the bottom of the paper that does not cover the wire screen?

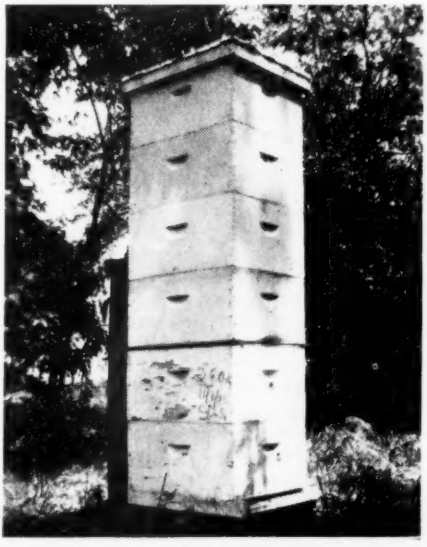
This will give Mr. Latham a cage that is protected from drafts and light and Mr. Root a cage that is not materially heavier than the ordinary wire cage and that can be examined by the consignee by simply tearing away the paper.

Colorado.

[How about it Mr. Latham?—Ed.]

Scale Colony Piles up Good Crop

By Wilbur Brandner



When this picture was taken July 29, 1946, the total gross weight was 342 pounds. It was a very strong colony early in the spring and on Easter Sunday (April 21) it gained 7½ pounds. It gained 105 pounds in June and 80 pounds in July. The best 10-day period was the last 10 days of June when it gained 11 pounds on June 22. My bees had a better average this year than in 1945.

Illinois

Second Glances

By C. M. Isaacson

Reports on Nosema agree more and more as to its seriousness. Evidently it is much worse in some seasons than in others, and this, as well as other aspects of this disease (one might also say "problem"), need research by those qualified and in a position to do so. And I am sure that many other beekeepers can give instances similar to Ralph Barnes' (page 658) as to its effect in causing queen supersedure. If the truth were known, it could well be that this may be an important factor behind unexplainably heavy losses of package bee queens at times. I know that I have had several cases where I suspected it. Let's not begrudge appropriations for research work—rather, we need larger ones.

Both sides of the family need to be considered in queen breeding, Mr. Oplinger says (page 659), and of course he is right. I believe that more and more queen raisers are coming to recognize this, and will insert combs of pure drone cells into their best colonies with this in mind. Controlled mating (meaning by this, absolute control as in artificial insemination) is too difficult for most, but by conducting rearing operations in as isolated locations as possible, and supplying large numbers of selected drones as well as queen larvae of good stock, the chances for improvement are much larger.

Resistance is not a sure thing (page 661). R. E. Newell's words about sum up, I think, what should be said about resistant strains of bees. They are of value, sulfathiazole is of value, and both, **together with** careful beekeeping, will go a long way in keeping AFB under control. The care will always be needed, both because of changing conditions which sometimes make any method less successful, and because of carelessness of others.

Top honey production can ofttimes surprisingly come from strains of bees just "left to themselves", while our carefully bred up ones get left behind. Perhaps this is another reminder of how much we have to learn yet in developing strains and fixing characteristics in anything with as complex an heredity as the honeybee (page 663). And these high producing "outlaw" strains, as Mr. Loskat puts it, are not always cross bees. Sometimes they are easily handled and nicely marked.

Insulating qualities of the cluster should be taken into account when attempting to explain the high efficiency of honeybees in transforming honey into heat energy (page 664). This, too, goes far in explaining why large clusters often use less food than a smaller one during cold weather. Another argument for better beekeeping.

The concensus on sulfathiazole does tell one thing—that it is well worth continued experimentation and use. It has undoubtedly been of real assistance in many cases, and with care may prove to be the big thing that it is claimed to be by some. Surely the expense factor in its use compares so favorably with the burning method that it warrants experimenting until we have determined definitely just what it will do and how far we can go with it. (pages 668, 676, and 692). Just let us use caution in depending on it too fully.

A bow shaped frame might be all right for the brood chamber alone (page 670), but in modern commercial beekeeping all frames are interchanged so much I fear it would be impracticable. Bees would surely fill up those empty corners in supers during a heavy flow. And for holding surplus honey (which use, Mr. Sechrist most likely did not intend to imply), they would take up too much space in proportion to the honey they would hold. But for experimentation—which always must take place first—they hold possibilities.

Bee diseases are serious, but one need not become panicky over them. I believe this is about the gist of Propolis Pete's remarks (page 691), and it is sound advice. But just a word—I just find it hard to conceive of a place outside of the center of a large city, where 18 colonies would mean "overstocking"!

Those hints included in the **Institute** News Notes make it a page well worth re-reading (page 695). And the **Institute's** work in making honey an "everyday item" with the public is just as well worth supporting.

Middle River, Minnesota.

From North, East, West, and South

SOUTHERN CALIFORNIA, Dec. 1

Weather: December 1 finds all of Southern California with prospects for one of our best crops. This prophesy applies to both irrigated and unirrigated sections. November brought one of the heaviest rainfalls of any November on record. Seven to eight inches over most of Southern California and reaching well toward the central part of the state. We have heard the cry, "Rain, I wish it would rain", ever since we came to Southern California, and here is hoping that we will get enough to satisfy them all this time. Rain is the very lifeblood of our prosperity. It is surprising how quickly the whole country responds to the fall of moisture. Country side, hill side and mountain sides are turning green, weeds as well as grass are everywhere. Dandelions are blooming in everybody's garden. We even saw bees working on them trying to get a little nectar. Streams are running and reservoirs are filling, giving us a good reserve for the future.

Honey Crop: The old crop is sold and prospects are good for 1947. We have seen bees getting some honey from the black sage the last days of February. Will we see it this season?

Market: Big demand with no honey to supply it.

Miscellaneous: This looks like a good prospect for honey in every fellow's tank. When everything blooms as it should this coming season the fellow in the back country, on our sage and buckwheat ranges, who never moves his bees should get his share of honey as well as the fellow who moves to every prospective location where he might get honey. These so-called back-country beekeepers were the only beekeepers we had at one time. They were getting honey when we had sufficient rainfall and starving the bees when we had dry seasons. We remember a series of so-called dry years, when whole apiaries died out and beekeepers had to start over again. With the coming of the orange, alfalfa, cotton, and other agricultural plants the picture has materially changed and it is seldom that bees fail to get stores for winter at least.

Parts of Southern California have experienced some very high winds since our last letter but aside from some trees being blown down we hear of no serious damage.

During the drive from our home in Corona to San Luis Obispo, about 260 miles, we are in what is usually termed Southern California. Black and purple sages are good honey producers over much of the territory. One of the things we observed was the thousands of acres of beans and tomatoes being grown without irrigation. With the abundant rainfall thus far and the prospect for more these crops should thrive in 1947.

Well, after six weeks, the grandson is off to a good start and we are off to our home in Corona.—L. L. Andrews, Corona, Calif.

NORTHERN CALIFORNIA, Dec. 3.

Weather: As usual, the weather of this past month has been made up of some rain, much sunshine, and some fog. To date, this section is approximately three quarters of an inch above normal, while the snow in the mountains is below normal. Friday of last week was a beautiful day and we had three visitors from Alberta and one from Ontario, Can., Messrs. le Maistre, Kawalski, Bluitt, and H. O. White. Mr. White left soon for San Francisco and a bus trip up the Redwood Highway. Here is hoping that he was not enveloped in a blanket of fog on that otherwise scenic and tortuous coastal highway.

I will be interested to hear what our southern beekeepers have to say about their weather. From this point we hope that their overdose of rain and heavy fog augurs well for sage and buckwheat honey crops in

the spring. They have it coming after some short crop years.

Condition of colonies: Colonies are generally in good condition in northern California except those in the region of tomato fields. Beekeepers are continuing to report picking up dead colonies, some of which have moth-eaten combs. This means fewer colonies for pollination and for package bees in the spring.

Market: The honey market is dull, as far as beekeepers are concerned, since they have very little to sell. High prices are still maintained for retail sales and many of the grocery shelves are bare of honey. Too much honey has gone into manufacturing channels for the good of the industry.

Orders for package bees are being received and taken at prices that range from 10 to 30 per cent higher than last year. Consideration is being shown for the Canadian trade where honey has not risen in price as here in the states.

Miscellaneous: As a means of controlling ants, we sprayed a 2% suspension of DDT in water onto the concrete foundation of our honey house on September 26 and to this date beetles, sowbugs, and other crawling animals are killed by the evaporated DDT at the ground level. No ants have made a bridge over the foundation whereas before spraying they used it as a 6-lane highway. We have Argentine ants. In the spring we will use a 5% suspension of DDT in water to renew the deposit. — J. E. Eckert, Davis, California.

WISCONSIN, November 22

Weather: We had a beautiful fall in Wisconsin — warm sunny days with very little frost until mid - November It gave ample opportunity to get all apiary work done. We examined every colony for AFB before brood rearing stopped in October and according to Assistant State Inspector, John Long, it's an excellent time to find the disease. Inspectors can work much longer than has usually been considered possible. We found two colonies with disease and were tempted to feed sulfa. In fact, delayed reporting the cases to inspectors while trying to decide. Then we found a colony not more than 10 feet from the diseased ones being robbed. It was a strong colony too —one that should have had enough fight to protect itself but didn't. That convinced us and we called the inspector. With only 1% infection it won't pay to take chances on spreading the disease.

We tried feeding one diseased colony last spring with sulfa without results. Perhaps it was the virulent type of disease. Another thing, we hate to think of being forced, the rest of our beekeeping days, to feed every colony that shows up with AFB 30 lbs. of sugar syrup—and many are likely to show up as equipment gets mixed up and all of it infected.

Market: Many beekeepers sold out at ceiling prices before decontrol. After that, of course, the price jumped. Our local retail grocer brought in honey which he is selling at $2.79 per 5 lb. pail, selling more of it than he did during depression days at 50c. Beekeepers are selling at more reasonable prices. The headache will come when sugar becomes available and honey more plentiful. It will seem hard to reduce prices and not have the consumer come to us to buy.

Preparing for Winter: Late in the fall we give each colony a quick inspection to see that the winter brood nest was properly arranged. We mention this because, in visiting beekeepers, we find it is often neglected, but most important. We use the three hive body brood chamber method as recommended by Dr. C. L. Farrar. It's a great success—cuts down labor, practically eliminates swarming if properly manipulated, and we are producing much stronger colonies than before adopting it. The bees should form their winter cluster in the lower part of the upper brood chamber and the upper part of the middle chamber and they should be surrounded by honey. We believe in putting winter protection on the inside of the hive rather than on the outside—of honey and pollen. Sometimes the cluster does not form where it should and we move combs so they will form their winter cluster properly. This fall

we found brood chambers well stocked with pollen—more than I can remember in years, though some beekeepers reported but little pollen. We anticipate heavy brood rearing beginning in this month or next. That means bees will consume much honey, but will come out in spring quite strong, replacing bees that die normally with young bees. It may also mean heavy winter losses where beekeepers failed to leave enough honey. — H. J. Rahmlow, Madison, Wisconsin.

ARIZONA, November 27

Conditions: After sacrificing most of our citrus honey to build back the losses by starvation and poison in 1945, we came through to a fair finish. The mesquite, or desert crop, was light and the same experience came with the alfalfa.

Then came the cotton. Jittery? No, the program set by tests and experiments conducted by Mr. S. E. McGregor, U. S. entomologist, with DDT proved to be a very satisfactory insecticide for both the farmer and the beekeeper. The effects on harmful insects were good, yet the bees made surplus honey all through the blooming season of August, September, and most of October.

Miscellaneous: This fall they are going to have a good supply of winter stores, although some localities were not so fortunate and will have to feed sugar again. The prospects of a good honey crop are very bright for next year. We have had an unusual amount of rain this summer, following into September, usually a dry month, and showers have been frequent this fall. — Roy Hastings. Mesa, Arizona.

TEXAS, December 3

Weather: The weather for the past month was mostly cloudy and cool, but no killing frost has occurred except in the northern sections of the state. Rainfall was generally above the average, with floods in the eastern sections of the state, while drought continued in a few areas.

Plants: The rather abundant fall bloom has ended. The yield of pollen was ample but nectar production was generally disappointing. The benefit of the fall rain to beekeeping is represented largely by good growth and bud development of native trees and shrubs, abundance of annual bee plants, now evident, and a reserve of subsoil moisture. All of these factors give promise of good bee pasture next year.

Crop and Market: Little honey was gathered after midsummer and a large portion of the crop was marketed before the decontrol of honey. Since then packers have been able to procure moderate supplies at an increase in price. Most producers are selling direct to retailers. Consumer prices are: 1 lb. glass, 45c, and 5 lb. glass or pail, $1.65. Supplies in producers' hands are becoming scarce and likely will be exhausted before a new crop is expected.

Bees: Bees generally over the state are in good condition. Winter stores are ample and a fair pollen yield during the fall permitted sufficient fall brood rearing for adequate colony population of young bees. Brood rearing has ended and scale colonies show only a moderate loss of weight during the fall brood rearing. In a few areas where drouth has prevailed, wherever colonies were extracted too closely and increase was made late in the season, colonies are very light and will require feeding.

Miscellaneous: The usual fall migrations to the Lower Rio Grande Valley were made this year. Eight thousand colonies were moved to that area last year. The Apiary Inspectors Service has required beekeepers in the area to register their colonies and indicate their locations. This is a big help in planning the inspection work and beekeepers have responded favorably to this movement.

The article by E. L. Sechrist on the "Behavior of the Bee Cluster", which appeared in recent numbers of Gleanings, is a valuable contribution to apicultural knowledge. The problem of procuring bee supplies for the coming year is one of great concern to beekeepers all over the land. Texas beekeepers will meet the suggested goal of 7% increase in number of colonies for 1947 if bee supplies can be procured. —A. H. Alex, San Antonio, Texas.

SASKATCHEWAN, Nov. 29

Weather: In my last notes for this column in May, I mentioned that we were having very fine weather which was not being accompanied by any rain. Unfortunately for Saskatchewan beekeepers, the fine weather lasted thru June accompanied by very little rain. Generally speaking, colonies entered the month of June in very good shape, but the lack of adequate moisture during June quickly showed up and colonies did not store in a normal manner, as the nectar did not appear to be in the flowers.

Honey Crop: Production figures for the province this year are now available and we have an average production of 50 pounds per colony for the province. This is less than one half of the 10-year average production, which is slightly over 100 lbs. per colony

Honey Market: The demand for honey continues heavy and it is not possible to begin to supply it. The situation has been aggravated by the fact that Eastern Canada has an almost complete failure.

Miscellaneous: After experiencing a honey crop failure, such as this, our beekeepers are greatly concerned about early reports of a very drastic increase in package bee prices in California, amounting to an increase to 75 or 80% over last year. While our beekeepers appreciate that package costs have been rising, beekeepers here are also operating under difficulties since our price of honey is rigidly controlled at 14 cts. per lb. for number one honey, and it will not be possible for beekeepers to pay the prices being asked by California shippers. I am very much afraid that unless their demands are drastically reduced this mutually profitable business will be disrupted with harm to both of us.

At present most western beekeepers are replacing the bulk of their colonies with packages each year. Higher package prices will force them to winter their bees. Once they become used to wintering, it is likely they will continue, thus permanently reducing the future package bee market.—R. M. Pugh, Fort Qu'Appelle, Sask.

NEBRASKA, December 4

Weather: Extra cool weather very early in the fall cut off what had promised to be an exceptionally good fall crop of honey. All the way through this year the season was about two weeks advanced, so that great stretches of profusely blooming heartsease, or commonly known smartweed, went ungarnered. To date we have had fairly steady cold weather with no extremes of temperature, none below zero. Consequently bees were in need of a flight which was possible on a bright, warm Thanksgiving day.

Crop: We harvested a good crop which was mainly light honey. Bees were in good condition at the proper time so they could and did make the most of abundant sweet clover nectar. Little dark honey was harvested, of course, because here our main source of dark honey is fall blooming smartweed. Had the weather conditions been favorable we would have reaped a bumper crop in 1946.

Condition of Bees: Bees went into winter in good condition generally. Though there was a great temptation to take too much honey because demand was so heavy and prices very high, the farsighted beekeeper realizes that ample stores are essential for next year's production.

Honey Market: This past year has truly been a beekeeper's dream-come-true as far as prices are concerned. And while these high prices may not be so good for the future of the industry they surely are most welcome at the present time when practically every commodity has doubled or tripled in price. Sad to relate, most producers completely sold out before controls were removed and now heartily wish they had held back the supply. Pound jars, which are about all one can buy in the stores, are priced at 63 cents. Comb honey is 54 cents per section.

Crop Prospects: The outlook for next year is most promising. Good fall rains have put honey plants in excellent condition and ever increasing interest is being shown in sweet clover production. More and more

interest is manifest in buying bees for next season, either established colonies or package bees.—Benj. Nielsen, Aurora, Nebr.

PENNSYLVANIA, Dec. 8

Weather: Extremely warm weather for October and November has permitted the bees to fly a large percent of the time and use considerable of their reserve food supply. Colonies weighed November 8 showed a loss of five pounds for a period of a little over two weeks. Part of this loss, however, may have been due to ripening of nectar and the loss of old bees. The warm weather also permitted bees to work a little on late dandelion and fall flowers. Bees were observed gathering pollen from dandelion here in central Pennsylvania during the middle of November. I can not recall ever having seen such large areas of dandelion in bloom this late. Protected areas of wild strawberries have also blossomed in November and I have heard several reports of fruit trees in bloom. It will be interesting to observe the type of winter we have after this unusually warm fall.

Condition of Colonies: Nectar gathered late in October has been poorly ripened so that the quality of winter food is below par. What honey the bees have was gathered in fall so that for a second reason the quality is below normal. Generally, the outer combs and part of the second story contain clover honey when winter sets in, which is not the case this fall. Considerable dysentery can be expected if the bees are confined for long periods of time between now and next April.

Miscellaneous: The trend of events leads one to wonder what the future of beekeeping is going to be. The price of honey is now reported to be 35c a pound in car lots and bee supplies are almost off the market.

Two queen colonies are recommended where a step ladder is required to work them.

Electric units as well as thermostats. we are told are beneficial for heating hives in winter. I am concerned for fear we develop a strain of bees that can not heat their own hives efficiently. If this happens, we will be in a serious situation should there come a general strike of power plant employees. Oh, well, it is probably best after all to let science progress as it will and then glean the best of its results through practical experience.—E. J. Anderson, State College, Pa.

MONTANA, Dec. 2

Weather: The fall was not too good because there were too many cool rains. The bees did not fare too well because of this but they did not have more honey than we normally would expect for so much cloudy weather.

Even when feeding time came it was next to impossible to get bees to take sugar syrup in the usual way. There is some feeding to be done yet and it will have to be syrup poured onto frames or frames of honey. We have some snow and the temperature is around and below freezing.

Market: The last of the honey here will soon be on the grocers' shelves. The price is still high. The unusual demand and the fact that Montana produced only 60% of the normal crop has lots to do with it.

Some things we could not understand. Stores would sell 25 or 50 cases of honey a day and be back for more honey and the honey would not go around. We were naturally charged with black mareting the honey because we could not supply the demand.

So far as we know the honey here went for table use. Our best stores would handle it as always and it would disappear in a day or two regardless of how much they handled.

Miscellaneous: Some of our bee men have been on long vacations. Others are going away for the winter. The bee industry has about doubled in number of bees and beekeepers. A number of our men from this part were in Helena for the State bee convention. We were glad to meet a lot of the old timers and new friends of the industry. Some of the bee industries best scientists and lecturers entertained us with

plenty of facts to take home to make our work easier.

Many of the beekeepers have been packing their bees or have already packed for winter. Some are ordering supplies for spring. However, securing bee supplies seems to be the biggest worry of the bee industry now. — Parson Pile, Corvallis, Montana.

VERMONT, December 9

Weather: On this all important subject, Vermont, as well as most of the northeast, had a cold wet August, and almost summer-like September and October. November, while still warm, is bringing considerable rain. Since the last notes we have had ample rain in contrast to dry weather in much of the North. So far, with a very mild fall, we are considerably interested in what our winter will be. Far as I have been able to discover, the preceding winter is about the only reliable forecast we have for the coming season. A cold hard winter is usually followed by a good clover crop. A warm winter almost always means a short clover crop. Why beekeepers in sections of the country that have normally warm winters get good clover crops is hard to understand with conditions as they are here.

Honey Crop: The past season has given us the shortest crop of honey we've seen since 1928 and if another like it doesn't come for another 18 years we will be just as well pleased. The crop has been one fourth of normal and not too good quality at that. With the sugar shortage and demand on top of the short crop, it has required considerable diplomacy to say "No" to requests for honey and not hurt anyone's feelings. Some areas we note have had a good fall crop, but as we never get any fall honey, we just have to wait until next year to get money enough to pay our bills. Unfortunately, alfalfa, upon which we have relied for crops of excellent white honey, seems to be on the way out. Whether it is disease or winter killing causing the constant decrease in plantings the past three years is hard for me to say, but it is scarce in the meadows. We hope this will be counter balanced somewhat by interest shown in Ladino clover and Birdsfoot trefoil. Both these plants seem to do well here and if interest in them continues we hope it will reflect on our honey crop. They both apparently are good honey plants.

Market: As everywhere else prices for honey are reaching fantastic levels. Retail prices of 98c for a pound section of comb honey and 69c a pound for extracted is like striking solid gold after the low prices of just a few years ago. We have sold the bulk of our crop at $1.50 per 5 lb. pail and consider it a good price, but some people, to satisfy a sweet tooth, will pay almost any price for honey. Not having any honey left to sell, prices do not affect us much yet, but we do wonder what prices will be next year with the new crop. Whatever the price is, it no doubt will be determined by the old reliable law of supply and demand. We hope that law will bring the prices down within reason with a big honey crop.—Chas. Mraz, Middlebury, Vermont.

IOWA, December 3

Honey Market: There is nothing to report from this section in the way of last year's big crop—there just wasn't any. To prove this, all one would have to do would be to go the rounds go the grocery stores and look for the honey department. In many instances one wouldn't find any.

Occasionally you might find some 1 lb. jars. I have seen very few larger containers. What little honey there was is retailing at around 40c for extracted, and the little comb honey there was at 40 to 45c per section.

Conditions: There seemed to be considerable white clover bloom but for some reason the bees did not get the honey. One large beekeeper told me that a swarm that he hived at an out apiary in June starved to death. That proves but one thing—**there was no clover flow if there was bloom.** All beekeepers know that no clover flow in June means there just won't be much clover honey. There also seems to be no fall honey on the market. This may be partly due to the fact that some beekeepers extracted too closely a year ago and depended on getting sugar to feed for winter

stores, then found it was hard to get and permits were slow in being granted so that when sugar finally was available winter feeding was too late for the good of the bees, consequently they did not depend on sugar this fall but left on the fall crop, which was the wisest thing to do.—W. S. Pangburn, Marshalltown, Ia.

ONTARIO, December 6

In line with the three preceding months, December to date has been milder than usual with only one morning registering at or near zero. Just now we are enjoying nice weather with the temperatures registering up near 50 for the past few days.

Possibly a record was established insofar as our experience goes, in that for two days in succession in November pollen was carried in from two different sources. On different occasions we have had the bees bring in dandelion pollen in November but this year in addition to the pollen from that plant, a nearly white variety was gathered—evidently from some garden flowers, as absence of hard frosts until late in November meant that many flowers dead by this date in other years were still in bloom.

Conditions: Precipitation for this part of Ontario has been much below normal and authorities report that rivers and lakes are lower than usual. Locally more rain is needed to bring water into many wells that have been low for months, making it necessary for many farmers to haul water from a distance for their livestock.

What clover we have for the next year is in normal condition but as mentioned in previous notes, it looks as if 1947 will be a poor year for the clovers in many parts of the Province. Some may question why we so think, and it is only necessary to remember that most of our clovers are biennials, and if they are not present now, certainly the mature plants in shape for nectar secretion will not be here next summer.

Miscellaneous: The Convention of the Ontario Beekeepers' Association has a splendid record for good attendance whether honey crops are good or poor, and the one to be held Dec. 10 to 12 will be a real test as to attendance insofar as the crops go, as the present season has been the worst on record, at least as far as local conditions are concerned.

As to markets—as mentioned in last issue—the market is here all right but the goods are lacking to care for the demand no matter how insistent it is. Just recently the writer took a tin of honey to Toronto and left it with attendants at a large parking station to be called for by a friend later when he left his office for home. The sight of that pail of honey was enough to have not only attendants at the station clamor for some like it, but some of the patrons of the station were also attracted and begged to be put in touch with the party who had honey to sell. Later on we found that not a pound of honey was on hand in the largest department store in Toronto and we could not help recalling the time some years ago when the writer sold that same firm five carloads of honey in less than ten minutes bargaining.

By the time this is in print Christmas will have passed and another year will have been ushered in. Once more may I be allowed to wish every reader of Gleanings a Happy and Prosperous New Year. The writer has been associated with Gleanings for many years indeed, and the most prized assets we possess are the host of friends we have all over the continent including many in foreign lands—many of these friends being made by our association with this journal.—J. L. Byer, Markham, Ontario.

Errata: In the December, 1946, Gleanings, page 679, first column, nine lines from the bottom, after the word "temperature", the following words should have appeared: "of the cluster and the surface temperature". As Mr. M. I. Taylor, author of the article, says, the inclusion of these words brings out the fundamental principal involved.

Editorials

The National Meeting at Tampa, Florida, January 13 to 17, promises to be one of the most important held in many years. Surely there are enough topics of interest to engage the attention of beekeepers who attend. Right now there are questions and problems that call for the best brains our industry can muster. Let's make the meeting worthwhile.

Sugar Supply It is estimated that the world's sugar supply will be about 31,000,000 tons this year against prewar consumption of 34,000,000 tons, when the population was smaller. Since the United States imports two-thirds of its sugar it is likely that the pinch will continue until the harvest year starting in September, 1947.

The relationship between sugar scarcity and price of honey has been close in the past. Coupled with this shortage of sugar has been the unusual amount of available cash in the hands of prospective buyers. How long this surplus will last no doubt will be a factor in the price of honey during the next few months.

What's Ahead in Beekeeping? As we stand on the threshold of another year we wonder what the future holds for our industry. Will we slip back, stand still, or go forward?

At times during the years, progress has been painfully slow but we have actually moved ahead, especially since the invention of the movable frame hive in 1852.

During the past quarter century beekeeping on a commercial scale has advanced and the automobile has made possible the operation of out apiaries within driving distance of the central plant. Migratory beekeeping also is practiced, using large trucks to move bees.

In the near future, planes, possibly the helicopter type, may be used for out apiary work. How easy and time saving it will be to fly from the home plant, with necessary equipment, to an out yard and drop down between the rows of hives. The larger type of plane may be used for transporting apiaries from North to South and vice versa.

Already planes are carrying bees from one continent to another and this will be done on a larger scale.

The demand for honey is likely to increase. Because of the excellent work in honey publicity being done by American Honey Institute under the capable guidance of Harriett M. Grace, honey is not likely to go begging for a market even when sugar is again available in quantity.

If there are any who lack faith in the future of our industry they should read the 40-page bulletin E 584, revised July 1946, entitled "The Dependence of Agriculture on the Beekeeping Industry", prepared by Jas. I. Hambleton, Bureau of Entomology and Plant Quarantine, Division of Bee Culture, Beltsville, Md.

When we learn that at least 50 agricultural crops depend on honeybees for pollination we begin to realize that beekeeping is an important branch of agriculture and has a future.

Producing a Boatload of Honey in Box Hives from Black Bees On page 42 of this issue reference is made to the fact that Moses Quinby, a contemporary of Langstroth, shipped a large amount of honey in a canal boat in the late 50's or early 60's, to New York City, and actually broke down the market because the people of that metropolis had never seen so much honey before. To sell or get rid of it was a real problem, concerning which no details are now available. At present no one man, even a Quinby, could break down the honey market in the largest city in the United States.

It should be explained that Mr. Quinby at that time probably had no foulbrood. It was unnecessary for him to look over the combs to see if they were free from disease. That he had foulbrood later was proved by the fact that he introduced what has since been called the "shaking" treatment, now discarded for complete burning of all infected material.

Possibly Mr. Quinby had to contend with another difficulty. In box hives there would be an unlimited number of drones and drone brood. Whatever value they might be in their added heat, they would also be consumers. It is possible that Mr.

Quinby knew how to make bees produce all worker comb. Mr. G. M. Doolittle, many years later, showed how this could be done. In brief, it provided for conditions requiring an increased number of worker bees. It also avoided the necessity of comb building when honey was coming in with a rush when the bees naturally would build drone cells. Today no one would think of discarding comb foundation because Mr. Doolittle pointed out it was very difficult to provide the necessary conditions for the building of worker combs.

Mr. Quinby had unlimited number of basswood trees. He also had a strong alkaline soil not exhausted by agricultural crops. With no need of handling combs but handling hives, Mr. Quinby could, in that day, produce what would be equivalent today to a carload of honey, for his early writings show that he had several hundred colonies of bees before the development of the Langstroth invention of movable frames, introduced in 1852.

Most Winter Losses Due to Faulty Management

It hardly seems necessary to amplify the above statement other than to say that if all beekeepers would pay close attention to the wintering requirements of each colony there would be a very low percentage of winter loss of bees in the North.

What are the wintering requirements? There are three: (1) Very populous colonies; (2) an ample amount of stores; (3) adequate protection against the elements.

It is possible to winter understrength colonies but if they get through the winter alive, what have you in the spring? Weak colonies that will have to be babied along during the spring months and like as not will have to be strengthened with package bees, which means added expense and labor.

It is possible to winter colonies on short rations—if they are not too short. It seems likely that many colonies have gone into winter short on stores—in some instances because owners "robbed their bees" too closely last fall. In a way we cannot blame beekeepers for taking every possible pound of honey to sell, at such high prices, but the old saying, "You can't eat your cake and keep it", still holds true, even in beekeeping.

Quite a number of beekeepers in the North Cyanogassed their bees last fall with the idea of stocking their hives with packages next spring. This method may be all right—provided it is possible to secure packages and sugar next spring.

But to get back to the title of this editorial, we must have strong colonies of bees with an abundance of stores and a reasonable amount of protection, for successful outdoor wintering in the North. Strong colonies in the spring should with intelligent apairy management mean strong colonies ready for the main honey flow. Many are just waking up to the importance of having very populous colonies ready for the major flow. Hundreds of carloads of honey are lost annually because colonies do not have a sufficiently large force of field bees at the proper time to harvest the maximum crop.

Bee Hive Production Prospects Improve

Through the efforts of an Industry Committee which met in Washington the first week in December the prospects of greater production of bee hives have improved. As mentioned in the December editorial, the Government Limitation Order intended to channel building materials to home construction seriously jeopardized bee hive production. The Order as written was so severe that it permitted no Western Shop lumber to be shipped to bee supply manufacturers during September, October, November, and part of December. Under these conditions bee supply manufacturers reported considerable reduction in the number of bee hives produced as compared with normal production.

The seriousness of the situation was called to the attention of Secretary of Agriculture Anderson as well as Stanley Ferguson, Chief of Lumber Distribution Section of the Civilian Production Administration, and a number of members of Congress. As the result a temporary Directive was issued which will permit supply manufacturers to purchase Shop lumber if available during the balance of December. It is rumored that after the first of the year a modification of L-359 will also permit the bee supply companies to continue to purchase Shop lumber as available, but also with some limitation as to quantity. This govern-

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ment limitation order is still in operation under the new federal agency designed to take over the remaining functions of the OPA, CPA, and Federal Housing Bureau.

One serious remaining obstacle in immediate production of hives is the severe freight car shortage in the western lumber region. Bidding for lumber by buyers has been spirited and prices high but it is hoped that some stabilized pattern of lumber prices will emerge soon that will not force bee supplies too high for profitable expansion on the part of beekeepers.

Importance of Check Colonies In conducting an experiment in the apiary comparing types of packing, methods of apiary management, or what not, it seems essential to have some check colonies with which to make a comparison. Things are what they are by way of comparison, always.

We occasionally hear of beekeepers who try out some experiment on an entire apiary, using all of the colonies for the experiment with no check colonies. It is usually possible to use a part of an apiary, perhaps one half of the colonies, for trying out the experiment and the rest of the apiary as check colonies. When this is done and careful records are kept it is possible to arrive at a logical conclusion. However, it may take more than one season's experiment to prove or disprove a theory.

Poisoning of Honeybees As mentioned in the October "Federation News Letter", poisoning of honeybees presents the greatest threat to the beekeeping industry that it has ever faced.

Just recently we received a letter from an elderly beekeeper in Arkansas who had lost practically all of his 80 colonies because of spray poisoning. This beekeeper was depending on his bees for a needed income during his declining years.

It is hoped that beekeepers over the country who received the questionnaire on spray poisoning, enclosed with the Federation News Letter, have cooperated with the Federation by answering questions and contacting as many beekeepers as possible, supplying needed information.

It is known that bees located near fields treated with calcium arsenate dust are seriously affected. We have it on good authority, however, that two chemicals DDT and 666 are being used to combat insects that attack cotton and that these chemicals are more efficient than arsenicals. The general use of these chemicals should be encouraged rather than the continuance of the arsenic dust.

Those who have experienced bee losses because of spray poisoning or who have authentic information on losses sustained by other beekeepers should get in touch with Dr. J. E. Eckert, University of California, Davis, California, as Dr. Eckert is chairman of the Beekeepers' Rights Committee of the National Federation of Beekeepers' Associations.

Black Paper Wrap for Bees The present tendency in outdoor wintering in the North where some protection is considered necessary for bees is toward a single wrapping of black building paper, preferably Siselcraft, instead of heavier packing. This paper may be cut in lengths to encircle each hive with enough lap to be fastened by a lath that is held in place by three or four small nails. A small opening is cut in the paper adjacent to the hive entrance. The upper part of the paper cylinder is folded down and the hive cover is placed on top and weighted down with a rock or large brick.

The black paper absorbs the sun's rays and transmits some needed heat to the hive on a day warm enough for a cleansing flight. Also the paper prevents cold winter winds from blowing directly in the hives. The protection given during early spring should also be valuable.

Last fall we selected twelve normal colonies in single-wall double-story brood chambers, wrapping six of them as described above and leaving the others without wrapping. The hives were weighed in November and will be weighed again in April. Results of this experiment will be announced in due time. We want to know if a paper wrapping is justified from the standpoint of extra labor and material involved—also the extra surplus honey secured. At present honey prices a few extra pounds saved or secured would go quite a way in paying for the extra expense for packing.

Homemaking Chatterbox

By Harriett M. Grace
Director
American Honey Institute

January is a month of alternating stinging cold and slushy thaw. It's a good time to stay close to a fire and keep warm and dry. If you feel let down after all the parties and excitement of the Christmas season, why not invite your friends to share your fire with you? A Hearth Party is one of the easiest ways to entertain, and it's fun for everyone.

Of course, the most important part of a Hearth Party is the fire itself. It should be blazing when the guests arrive and for at least part of the evening before it subsides to a cozy bed of glowing coals. If you select the wood and lay it with care, you will have a fire that is safe, looks cheerful, and burns steadily with a pleasant woodsy fragrance.

Lay the fire any time you wish, but be sure it is ready to light a few minutes before your friends come. You will save a great deal of woe and worry if you start with plenty of kindling. Don't have a guilty conscience about using paper to get the fire going. Crumple slightly a piece or two of newspaper or other unglazed paper and place the kindling wigwam fashion over it. Leave plenty of air spaces and use andirons or two green logs to support the main fuel, for proper air circulation is as important to a good fire as the wood itself. Probably the best kindling is fat pine which contains a large amount of dried resin, but pine and balsam knots, birchbark, and dry poplar and other soft woods are good, too.

Driftwood found beside inland streams is usually softwood and burns too fast to make good fuel Driftwood found on the seashore, however, is usually more than satisfactory because the salts deposited in the wood burn with many colored flames which add to the charm of any fire. Those who live in the inland sections of the country can now enjoy these beautiful colors by sprinkling into their fires some of the commercially prepared mixtures available at most notion counters.

Before your guests arrive, bring in enough wood to last throughout the evening. Try to make the house cool enough that the fire won't make it uncomfortably warm, and draw attention to the fire by turning off the lights. When you are ready to light the fire, make sure that the chimney draft is open. Then set fire to a tightly twisted piece of paper and hold it up into the chimney. This starts the upcurrent, so that when you light the fire the smoke will be carried up the chimney without any coaxing.

Fireside entertainment can be of the most informal sort, since reminiscing and singing will begin spontaneously. It would be nice to include in your party someone who plays an accordion or ukelele so that the singing will have an accompaniment. If each guest is given a tiny bundle of twigs tied with a bright paper ribbon, and is asked to write his pet peeves on a slip of paper and tie it to the twigs, he can gaily watch his troubles go up in smoke as he casts his bundle into the fire.

Refreshments are part of the fun at a Hearth Party, and should be very simple. Just for nibbling, keep a row of apples roasting before the fire, and have a large bowl of nuts in the shell with plenty of tools for cracking them. You may prepare spiced cranberry juice in advance and serve it hot with popcorn popped over the fire.

For an unusual treat, plan to serve Honey Horns. Mix your favorite biscuit dough, pat or roll it to a thickness of ¼ inch and cut into strips ¾ inch wide and about 8 inches long. Place the strips on waxed paper on a tray or board, and put them where the guests can reach them. Provide each one with a toasting stick of green sweet wood (birch, sassafras, or maple) at least 2½ feet long, about ½ inch in diameter at the small end with the bark peeled back for about 4 inches from the small end. Let each guest twist a strip of dough around the peeled end of his stick, being careful to overlap the coils and to cover the end of the stick completely. Then each one can toast his own, turning it constantly over the fire until it is golden brown and slips off the stick without sticking. Fill the center with honey butter or with a chunk of comb honey and eat while warm. Honey Horns are delicious and as much fun to make as they are to eat.

Talks to Beekeepers

By M. J. Deyell

The Shotgun Method

A few years ago I was asked to give a talk at a bee meeting in western Ohio. In my introductory remarks I mentioned the shotgun vs. the rifle method of shooting or disseminating beekeeping information. On that occasion I had chosen the shotgun method because being a poor shot I would be more likely to hit the mark by attempting to give information on a number of topics related to beekeeping, rather than to use the rifle method,which would deal with only one phase of beekeeping and perhaps miss the mark, because relatively few listeners might be interested in that one topic.

Three years later while attending a meeting in the same section of Ohio one beekeeper who had heard me on the former occasion asked, "Jack, did you bring your shotgun today?" Now, I would be willing to bet that this beekeeper had forgotten everything I tried to say at the former meeting but he did remember the shotgun.

Shooting Over Heads of Beginners

As I get around the country attending meetings here and there—county, state, or national—I am impressed with the fact that beginner beekeepers get very little information from the meetings they attend. They do perhaps pick up some ideas from beekeepers, between sessions, and that, by the way, is where some of the more experienced beekeepers learn some worthwhile ideas.

Difference Between a Package Bee and a Regular Honeybee

Some few years ago at our Ohio State winter meeting in Columbus, a speaker was scheduled to talk on package bees—how and why they were used, etc. A bright young chap very much interested in bees occupied a front seat, drinking in every word. At the conclusion of the talk this young fellow raised his hand and asked, "Just what is the difference between a package bee and a regular honeybee?" Of course, the speaker was kind enough to go into detail and give the desired information. A few in the audience laughed but if they had listened to a talk on some subject foreign to them they probably would have asked just as simple a question.

Some speakers and writers assume that listeners or readers know more about the topic being discussed than they actually do know. A speaker or writer should define some of the terms used in order to be thoroughly understood.

Beekeepers are Optimists

I had the pleasure of attending the 69th annual Ontario Beekeepers' Association meeting in Toronto December 10 to 12. Ontario beekeepers harvested the smallest crop in many years, possibly the smallest on record, and yet the meeting was well attended. A few beekeepers got no surplus whatever. There was considerable speculation as to why the crop was so small. Somewhat similar conditions prevailed in Ohio. I have about come to the conclusion that part of the trouble was in not having populous colonies at the time nectar was secreted.

In my own yard of 50 colonies about 3½ miles from Medina I had a few colonies with around 60 lbs. surplus. The average for the yard was a little less than 25 lbs. per colony. Now the question arises: why did a few colonies get a fairly good yield and the majority of the colonies a crop far below the average? I hate to say it but I honestly believe my failure to get a larger crop was due to my faulty apiary management. I do know that some worthless queens should have been replaced the previous fall. Too many of us are satisfied to have hives with bees in them rather than populous colonies boiling over with bees, ready for the beginning of the major honey flow when it comes.

Working Bees Overtime

I have wondered what would happen if a colony of bees, we will say, in Ohio, were transported at the close of the fall honey flow, by plane, to another section of the world, New Zealand, South Australia, or South Africa, where the active bee season is just opening. The bees would likely respond to the new environment by gathering honey and pollen and producing brood as they would here in Ohio at the beginning of the honey season. Of course, a colony subjected to this treatment would need to be requeened oftener and there would be a continuous

turnover of the hive's population.

Some beekeepers in this country are taking bees South in the fall, working their bees overtime in order to increase the number of colonies, produce early bees and queens and in some instances extra surplus honey.

This idea may sound alluring and perhaps simple to some beekeepers. It is not so easy as it looks. Some northern beekeepers have learned the hard way that there are problems and also considerable expense connected with such a project. In the first place, it is absolutely necessary to obtain a certificate of inspection (a clean bill of health) from the inspector of your state, also permission for moving, from the bee inspector of the state to which you are migrating. In the second place, it is important to find a suitable location for bees, one that is not already oversocked.

From the standpoint of profit, in my opinion, it is preferable to purchase package bees and queens from reputable southern breeders, rather than move bees south for the purpose of producing early bees and queens. However, if one wants to get away from cold weather and do a little fishing while playing with the bees once in a while, that is another matter. Some northerners may imagine that all is warmth and sunshine in the South during the winter. Those who have that idea will have to live one or two winters in the South to find out the truth of the matter. One of the coldest nights I ever spent was in St. Francisville, La., February 2, some years ago. The mercury got down to 30 degrees. The room I slept in (or tried to sleep in) was unheated. I had plenty of cotton covers but I shivered all night long. In the morning I took a bus for Baton Rouge and it took half a day to thaw out in a steam-heated hotel. In saying this I am not casting any reflections on Louisiana, as other southern states also have cold spells during the winter.

Working Bees Overtime Not a New Idea

Some of the younger generation of beekeepers seem to think that this idea of moving bees South for the winter is a comparatively new idea. As a matter of fact, the practice began some years ago. The fall of 1913 the Root Company moved a car of bees, 325 colonies, to Ranlett's Landing, 16 miles north of Apalachicola, on the Apalachicola River. During early spring the bees were worked for increase and queen production. By early May we had secured a considerable amount of surplus tupelo honey and had increased the bees from one to three carloads. This involved an immense amount of labor and expense.

I was sent down to bring up a carload of bees in late April. Lack of space forbids much detail other than to say that 325 single story hives of bees, screened top and bottom, were loaded onto an old style river boat, a backwheeler, the Mark Twain type, and brought up to Bainbridge, Ga., where they were loaded onto a 40-foot stock car. It took about 24 hours for the trip up the river, almost a day to transfer the bees from river boat to railroad car, then five more days to deliver the bees to Medina. I slept on an army cot in one side of the car, beside the bees during five nights.

After arriving at Medina and resting up for a day or so I went back to Florida after a second car of bees. The third car was brought a few days later by the boys who were with the bees in the South. Those were the days. I could write a book about experiences enroute. The second and third cars of bees were delivered in Medina about the first week in May in time to take advantage of the fruit bloom and dandelion honey flow.

Moving bees from North to South, then South to North can be done but it involves an awful lot of labor and expense. Moving bees by truck is rather expensive, as I have learned after many years' experience along this line.

A Word about Wintering

If hives in the North are covered with snow, be thankful. Let the snow remain where it is. It is good protection. Bees will not smother. If a sleet storm freezes ice over the bottom entrances it is well to remove the ice, especially if the hives have no upper entrances or flight holes.

I am old fashioned enough to believe that the less we tamper with hives during the winter the better it is for the bees. At least opening hives during winter doesn't do bees any good—unless it is to supply needed food.

Joseph Henry Merrill (1881-1946)

Dr. J. H. Merrill, a renouned apiculturist, died at his home in Raynham Center, Mass., on November 21. He was one of the rare scientists who accomplished much under a great physical handicap. With limbs completely paralyzed, Dr. Merrill used his keen mind to stimulate and direct the work of his students in apicultural research with such success that he might be considered another Huber.

Dr. Merrill will be remembered for his interpretations of bee behavior and basic analysis of the honeybee colony, including studies on brood rearing, changes in colony populations under different methods of wintering, and correlations between physical characters of bees and their storing ability. He corresponded freely with the leading apiculturists throughout the world until he was obliged to retire from active work. Between 1918 and 1941 he published approximately 50 articles covering his research. Most of these will be found in the American Bee Journal, Gleanings in Bee Culture, and the Journal of Economic Entomology.

Dr. Merrill had a personality that enabled him to largely ignore his disability and which endeared him to his devoted family and friends. He was a student of literature, early American history, and architecture, as well as being a naturalist. His greatest pleasure was in visiting with his many friends who stopped daily for a few minutes or an hour or more. The breadth of his reading and analytical mind made his conversation always stimulating no matter what the subject was.

Dr. Merrill was born at Amherst, Mass., November 12, 1881, received his B.S. from Dartmouth in 1905, and Ph.D. from Massachusetts State College in 1914. He held the positions of Associate Professor of Apiculture and Assistant Apiculturist in the Experiment Station, Department of Entomology, Kansas State Agricultural College, 1912-'25, and State Apiarist of Kansas 1918-'25. In the spring of 1925 he decided it was necessary to give up active work and had made his home since that time in a beautiful old Cape Cod Cottage dominated by history but surrounded by flowers and always a few bees. He is survived by his wife, Lillian, a son, Joseph Henry, Jr., a daughter, Frances, and two grandchildren.—C. L. Farrar.

* * * * *

High Lights of Toronto Conference

M. W. Webster, Secretary-Treasurer of Ontario Association, mentioned that 200 colonies were being used for experimental work, which includes the queen rearing project on Pelee Island.

P. W. Burke, Provincial Apiarist, reported disease down to 3.5%, a decrease of 2% over 1945. The honey crop for Ontario is 3½ million pounds less than the 1945 crop. Average per colony production in 1946 was only 25 pounds—the poorest crop on record.

G. F. Townsend of Guelph College, said that over 3000 queens were produced on Pelee Island in 1946. It was found that queen mating hives had to be placed in zig-zag fashion, instead of in straight rows, to avoid having some queens return to the wrong hives after mating.

Allan T. Brown, President of Canadian Beekeepers' Council, mentioned the importance of advertising honey nationally to increase consumer interest for the future, when sugar is again available in quantity. It was suggested that beekeepers be assessed 1/10c per lb. on honey sold, to build up an advertising fund.

W. A. Stephen, of Experimental Farm, Ottawa, reviewed history of the sulfa drug and told of experiments tried. Most AFB colonies fed sulfathiazole apparently cleaned up but a few didn't completely. If the colony does clean up there is no assurance it will stay clean indefinitely. Badly infected weak colonies should be destroyed. Extreme caution is advised in using sulfa.

W. C. Roberts, of U. S. A. Field Station in Apiculture, Madison, Wisconsin, bee breeding specialist, emphasized the importance of selecting the best parents in breeding. With artificial insemination, using known drone sperm, it is possible to achieve satisfactory results in mating and the day seems near at hand when pedigreed stock may be available to bee and queen breeders.

Visitors from Holland

Walter Thomas Mrs. Helffer E. R. Root Mr. Helffer

Again, Gleanings has had distinguished guests from Europe. This time it was Mr. and Mrs. A. Helffer from Amsterdam, Holland. Amsterdam is a thriving city of more than a million inhabitants. The alert and up to date beekeepers' association boasts of 300 members, 200 of which keep bees on roofs.

Holland, a country of over nine million people, has suffered much through the war. The needs of the people were great and there is still an acute shortage of the very necessities of life. There was actual starvation, but such is the proud patriotism of the people that complaints are few, and the actual condition of the war-devastated country remained almost a secret.

All cane sugar is imported from Dutch colonies but the great part of the sugar used comes from the sugar beet grown throughout the country. Not only is every ounce of sugar extracted, but the pulp is used also in various ways so that nothing is wasted. Sugar is scarce and is likely to be for some time to come. Beet sugar is fed to the bees with good results at all times.

Honey production is an important and essential industry both from the standpoint of the honey and from the importance of bees as pollinators of fruits, vegetables, and legumes.

Gleanings sends felicitations to the Hollanders who through adversity have grown strong and great!

Shipping Bees by the Pound
By E. H. Cook

Many years ago I started selling bees by the pound. At that time Mr. A. I. Root was shipping bees in a light package made of three 4¼ x 4¼ section boxes covered, sides and ends, with wire mesh, which was about 14 inches long by 4¼ inches wide, for a pound of bees. It seemed so fragile I decided to ship in good strong boxes with wirecloth top and bottom.

Result: Bees arrived at destination in poor shape, holes in wire and bees drenched with water.

Then I decided to try the section box and wirecloth package. The first trial package was a pound of bees to a customer in Rhode Island, on one of the hottest days of July of that year. The bees arrived in fine shape. I shipped many of those packages without a single loss. The sight of all those bees in so fragile a container inspired deep respect and very careful handling by the express men.

Connecticut.

Asked and Answered

Peculiar Odor in the Apiary

Question:—I detect a sour smell around my hive this fall. What can it be?—M. W. Thomas, Virginia.

Answer:—The sour odor coming from your hive may be due to the fall honey, possibly goldenrod and aster, being gathered by bees at the present time. We receive such reports from beekeepers in goldenrod and aster regions.

Honeybee Can Sting Only Once

Question:— Does a bee die after stinging, and if not, does it grow another sting? —H. J. Armstrong, Florida.

Answer:—When a honeybee stings a person or an animal, the sting becomes detached from the body of the bee. In other words, the bee loses its sting and eventually dies. The sting of the honeybee is barbed and this is the reason the bee loses its sting. The sting of a hornet or bumblebee is not barbed and consequently they can sting more than once and do not lose their stings.

Uniting to Retain the Best Queens

Question:—I have some weak colonies that I wish to unite. If I place the hives containing the better queens on top would they be more apt to be retained than if placed on the bottom?—Mack Hoagland, Michigan.

Answer:—It would seem preferable to place hives containing the better queens on top of the hives containing the less desirable queens when uniting. Our experience has been that the queens in the upper hives are likely to be retained while the queens below are likely to be disposed of. In "Talks to Beekeepers" for October this matter is mentioned.

The Use of Queen Excluders

Question:—I have several colonies with deep supers two or three on top of each other. Now (Sept. 13) they have brood all over and it's hard to get the honey out. Should I look for the queen now and rearrange their make-up with queen excluders or wait until next spring?—M. Hoeferle, Ohio.

Answer:—It is usually customary to have queen excluders above the brood chambers of hives containing colonies operated for the production of extracted honey. As you have comparatively few colonies the use of queen excluders may not be necessary. During a heavy honey flow the queens are likely to be driven down out of the supers into the brood chambers below. As the brood emerges from the combs in the supers the combs are filled with honey. If this present honey flow continues your queens will likely be driven down below. In any event, if you winter in double story brood chambers, the upper story should be quite well filled with honey in addition to some honey in the lower chamber. If you have the time, and the queen excluders, it might pay to put each queen down below into a double brood chamber. You will then know where the queens are when you remove the honey to be extracted.

Removing Honey with Carbolic Acid

Question:—For several years I have used the carbolic acid boards to remove the honey, and I can not do without them. My equipment is so old and shrunken that I cannot use bee escapes without spending several hours plugging all cracks to keep out robbers, and even then they sometimes get in.—C. J. Clark, Montana.

Answer:—Regarding carbolic acid for removing surplus honey, quite a number of beekeepers use it successfully. In our opinion, however, it is an easy matter to taint the flavor of the honey unless extreme care is taken in using carbolic acid. Some of the large bakeries that use honey in bread making say they can detect the odor of carbolic acid in honey after the honey is heated. These bakeries do not want honey that is removed by the carbolic acid method.

Single Story or Double Story Wintering

Question:—My husband and I are completing our first season with bees (14 colonies started from packages during June). We use double 8-frame hives and the surplus ran from 25 to 175 lbs. per hive. We plan to get 50 new packages in the spring of '47 and wanted to use the single story hive exclusively. Since reading the recent articles in Gleanings we have wondered if bees winter as well in the single body hive as in the taller 8-frame doubles. What is your opinion for this area of Central Wisconsin?—Hazel M. Lindow, Wisconsin.

Answer:—We cannot say for a certainty which of the two hives mentioned in your letter is preferable for your locality. Most beekeeping authorities are now of the opinion that a colony of bees wintered in a double story hive with the upper story practically filled with honey with some honey also in the lower chamber, provides ideal conditions for wintering. The winter

cluster will form with the center of the cluster occurring between the two sets of frames. The bees in the cluster can move sidewise if necessary during the winter to reach the honey that may be found in the outside combs. Beekeepers in many sections of the country are now using the two-story 10-frame standard hive and this hive seems to meet winter requirements. The 8-frame two-story hive holds less honey but if the upper story is jammed full of honey in the fall, in addition to some honey in the lower story, there should be an ample supply for winter and early spring stores.

Utilizing Small Amount of Honey in Supers

Question:—I am one of the back-lot beekeepers with two colonies in my back yard. This summer has been a good one in that both colonies have produced over 200 lbs. each, and each one has at least 50 or 60 lbs. at the present time, which I desire to use for wintering. I have used three supers and a brood chamber on the colonies, allowing the queen the run of the brood chamber and bottom super, and have alternated the top two supers in extracting in order to leave room for the bees to maintain the winter supply at all times. My trouble now is that the last time I extracted I put the empty super back on each colony, the idea being that they would clean them up, then I could take them off for winter. Instead of cleaning the combs, the bees put more honey in them. Now I am at a loss to know just what to do to make them take the honey down from the two top supers. Should I extract the two top supers and feed the honey back to them, or will they move the honey down when cold weather threatens? —W.C. Bremigan, Montana.

Answer:—Inasmuch as you have each colony in a two-story hive and the lower chamber full of honey for winter stores, why not remove or extract the honey from the supers that are above the double story brood chambers? It is possible of course that in due time the bees may carry down some of the unsealed honey out of the last super they worked on. If you will put this super over the inner cover, with the center block removed, the bees might carry the honey down more quickly than they would if you placed it on a queen excluder. Honey is honey this year—at least there is quite a demand for it in this part of the country and we assume the same is true in Montana. If you are not able to use the 400 lbs. of honey already produced by the two colonies, in addition to the honey that is still on the hives, you could easily sell some of it to neighbors as sugar is very scarce, as you well know. Another way to induce bees to take a relatively small amount of honey out of supers and store it in the brood nest or brood chamber is to put such a super underneath the brood chamber directly above the bottom board. It seems that the bees will carry the honey up more easily than they will carry it down. You might try this, especially if you think there is not enough to bother extracting.

Excessive Swarming

Question:—What makes my bees swarm so late this summer (August 29)? They have enough room and they have ventilation too. I cut out the queen cells and put the swarms back where they came from but they would not stay.—Moses Stauffer, Pa.

Answer:—It is apparent that you must have a honey flow on in your locality to cause bees to swarm. As a matter of fact, you may consider yourself fortunate in having some swarms, because generally speaking, the conditions have not been favorable for nectar secretion; at least adverse weather conditions have prevailed here. Swarming can be controlled by providing ample comb space, which means putting on supers a little in advance of the time they are actually needed. The colonies headed with young queens are less likely to swarm than colonies headed with old queens. If you will destroy all of the queen cells when you put a swarm back into the hive from which it has issued and raise all of the brood except perhaps one comb, from the brood chamber into a super above, the swarm that you put back is likely to stay. Of course, if you are producing comb honey and do not have extracting supers, this procedure would be impossible. In the event that you are producing section comb honey you can cage the old queen by putting her in a small wire cage at the side of the follower board in the comb honey super, leaving only one queen cell in the brood chamber. In due time a young virgin queen will emerge from this cell and should eventually become mated. During this time the old queen is in the super above and can be killed or otherwise disposed of after the young queen below has been found to be laying.The writer tried out this method in Michigan many years ago and it worked in that locality. We believe it will work in Pennsylvania.

80 Years Among the Bees

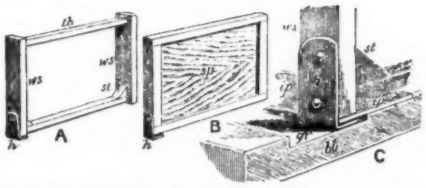
By E. R. Root

Personalities of the Early History of Beekeeping

Moses S. Quinby

In our last issue I omitted the mention of a very important person and although out of chronological order I'll put it here. I refer to Moses W. Quinby of New York, a contemporary of Langstroth. Quinby was the author of another bee book entitled "The Mysteries of Beekeeping". In this, he taught how to make money out of bees before the invention of the movable frame hive by Langstroth. With nothing but box hives honey was stored in the form of box honey in five pound glass boxes. It was reported that he produced in one season enough honey to break down the New York market. It was shipped by canal boat in one big lot. It might have been enough to make a carload as we now know it by rail. Those boats could carry a lot of honey.

It is apparent that Mr. Quinby was the first commercial beekeeper in the United States in the early 50's. A. I. Root, my father, said his book was charmingly written and that he would like to try out that system, although he had been using Langstroth movable frame hives. It should be noted that commercial beekeepers are handling hives more and frames less. It is evident that Quinby knew how to breed up colonies in the spring. At the start he had no foulbrood to deal with. With basswood and clover abundant he could produce a sizeable crop of honey. Quinby later had foulbrood and was the first to announce shaking into clean hives. About that time he began using movable frame hives. The frame that Quinby adopted was not the Langstroth hanging frame but closed end bar frames which were hooked up on a bottom board as shown in the illustration. The frames were slipped edgewise into place to avoid killing bees. They could be handled in twos and threes in blocks. That they were practical was shown by the fact that Capt. J. E. Hetherington had 3000 colonies on them. P. H. Elwood also had 1200 colonies on them. Mr. Elwood showed me how he could handle the frames without killing a bee by shoving them edgewise past each other after hooking the frames at the corners. It should be explained that the end of the frames formed the outside of the hive. The open sides were closed by panel boards held in place by a single string. Mr. Elwood showed me that he could separate the frames by a common pocket knife. Bee glue could not be plastered on the outside of the frames.



Quinby closed-end standing frame, showing the bottom corner hook.—From Cheshire.

In 1890, when I rode on a bicycle up into New York to see Hetherington and Elwood, I was seriously thinking of recommending this Quinby frame to the beekeeping fraternity but on better thought adopted the Hoffman frame because it could be used in all standard hives. History has shown that this was a wise choice especially since the Quinby system had no hive body outside the frames.

Quinby's First Bellows Bee Smoker

Mr. Quinby was the first to make and advertise a bellows bee smoker. All the smokers in present use are based on the original construction of the Quinby. It was later improved.

The original Quinby had one defect. It would "go out". That is, it had no bottom vent to allow a draft which was included by T. F. Bingham, A. I. Root, and L. C. Root, a son in law of Quinby. L. C. Root revised Mr. Quinby's book calling it "Quinby's New Beekeeping". In this, L. C. Root incorporated the movable frame of Langstroth and the closed end frame of Quinby. In this he did a good piece of work.

Mr. Quinby was a frequent writer on bees in the agricultural press in the early '50s. He had no secrets or patents on hives. He was willing to tell what he knew to others.

American Honey Institute News Notes

Mrs. Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

Honey Contains Folic Acid.—Research shows that honey carries some folic acid. However, honey is not a rich source of this B vitamin.

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The annual directory will soon be published. If your check reaches the **Institute** by January 20, your name will be included .

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The **Institute** receives many letters and telephone calls from every section of the country each day asking, "Where can I get honey?" We wish we knew. Not long ago a producer of honey placed an ad in the local papers. He offered his honey at $1.10 for a five-pound pail. Within an hour after the papers had been on the stands, a line was formed such as one is accustomed to see only for nylons. The following day the honey was gone. One and one-half **tons** had been sold.

* * * * *

The following letters from the director of a woman's program on the air will give you an idea of the demand for the recipes of the **American Honey Institute:**

(Letter number one.) "Thank you **very much** for sending me the three leaflets (150 of each) on honey.

"I featured the 'Honey of a Chocolate Cake' on my Friday program—along with other uses of honey. And already this morning I have over 200 requests for the three honey leaflets.

"Would it be possible for you to send me another 150 copies of each? I hope you won't feel that this is too great an imposition—asking for this many of each . . . but we surely would appreciate receiving them if they are available."

(Letter number two.) "The mails are bringing us requests by the hundreds for the honey material that we featured on our last Friday morning's program.

"Already we have sent out the 300 sets of booklets that you forwarded us—and we still have approximately 375 requests to fill. No doubt the balance of the week will also bring requests. Is your supply of these booklets such that you could forward us another additional 400 copies of each? Everyone, of course, is interested in the recipe for 'Honey Chocolate Cake' and in the event that you do not have these three particular booklets, would you have any others that you could send us and which we could mail in 9 x 4 envelopes?

"I hope that you folks feel that this has been a good promotion for honey. If you would be interested in seeing a copy of the script we used, I would be very happy to forward you a copy.

"Thanking you again very kindly and trusting that you will have a supply of honey booklets for us."

(Letter number three.) "I almost hesitate writing you again, but we are desperately in need **again** of the honey booklets.

"The booklets you have sent us have all been mailed out to individuals who have requested them . . . . and we still have close to 500 requests to fill

"Is it possible to secure another 500 sets from you? Surely this number should take care of all requests that we will have.

"We are very grateful to you for the very fine cooperation you have given us, and if we can be of service to you in any way, feel free to call upon us."

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The eight-page folder "Citrus Fruits and Honey" may be had at $1.00 per 100 from the **American Honey** Institute, Madison 3, Wis. It may be well to get your orders in before the supply is gone.

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Resolve to protect your future income from beekeeping by supporting the nation-wide program of the **American Honey Institute.**

Just News

The New Jersey Beekeepers' Association Annual Convention will be held on January 23, 1947 in the Lodge Room, Moose Hall, 401 East State Street, Trenton, N. J. The meeting will open with an address by President John W. Shorter. The principal speakers at the meeting will be Dr. E. F. Phillips, Miss Marie Doerman, Milton H. Stricker, C. W. Wilkinson, and Frank Fekel. A beekeepers' dinner will be held at 6:15 P. M.

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The Tennessee State Beekeepers' Association will meet in the Noel Hotel, January 31, 1947, in Nashville, Tennessee. The program will begin at 9:30 and continue until 4 P. M. Louisiana white clover, crimson clover, and vetch as honey plants and the role of beekeeping and soil conservation will be discussed. Sulfathiazole will also receive attention. —John M. Amos, State Apiarist.

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The Twenty Fifth Annual Short Course in Beekeeping will be held at the University of Manitoba, Winnipeg, January 13 to 24. The lecturers are A. V. Mitchener E. C. Martin, W. S. McLeod, and other specialists. The tuition fee is $5.00.

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A. E. Shaw of Shannon, Mississippi, a producer and shipper of bees and queens for many years, lost his life in an automobile accident December 4, 1946.

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The Polytechnic High School in Oakland, California, Dr. F. M. Yackey, Night Principal, is giving the fourth course of eight lessons on Practical Beekeeping, commencing February 10, 1947, at 7:30 P. M. The fee is $1.00. The instructor is a practical beekeeper who has operated approximately 1000 colonies. These courses are sponsored by the Alameda County Beekeepers' Association which meets on the fourth Tuesday of each month in the Polytechnical High School. The Association has a membership of nearly one hundred, all beekeepers.—D. L. Hopkins, President.

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The study of honey producing plants cannot be given too much consideration The beekeepers in Cuba are particularly fortunate in having made available to them through the kind offices of the Cuban Ministry of Agriculture the many years' work and observations of Gonzalo S. Ordetx. This publication is entitled "Plantas Meliferas de Cuba" and is presented to the Cuban beekeepers as a special issue of the Revista de Agricultura, the official publication of the Ministry of Agriculture.

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The New Rochelle Beekeepers' Association will hold its regular monthly meeting at 2:30 P. M., January 19, 1947, at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y. All members are urged to be present for election of officers for the coming year. Movies will be shown following the meeting, after which refreshments will be served. Visitors are welcome.—B. F. Miller, Publicity.

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Mr. A. Gay, State Inspector of Apiaries, of Arkansas, suffered a fatal heart attack on Thanksgiving day while hunting with his son. His passing is a severe loss to all Arkansas beekeepers, He loved his work and he loved people and was a good mixer. He left a host of friends to mourn his departure from this life. Our heartfelt sympathy goes to his loved ones.—S. J. Head, President Arkansas Beekeepers' Association.

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The final meeting for 1946 of the Bergen County Branch of the New Jersey Beekeepers' Association was held Oct. 25 in the County Administrative Building, Hackensack, N. J. It was well attended. Dr. A. Z. Abushady and Mrs. Elizabeth Berdans were guest speakers, and officers for 1947 were elected. Also present were W. Raymond Stone, Co. Agricultural Agent; Paul Holcombe, State Bee Inspector, and Elmer G. Carr, Ass'n. State Secretary. Officers elected were as follows: Parker Hamilton, President; John C. Sonheim, Vice-Pres.; John Gasko, re-elected Treasurer; Richard Geoghegan, Secretary. A comprehensive program for 1947 has already been formulated. The first meeting of the year will be held January 15. 8

(Continued on page 53)

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 10 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility. and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—White and amber honey. any amount. D. F. Treap, 316 Keenan Ave.' Cuyahoga Falls. Ohio.

HONEY & BEESWAX—Highest prices paid. Mail Samples. Advise quantity. BRYANT & SAWYER, LOS ANGELES, CALIFORNIA.

WANTED—EXTRACTED HONEY—Clover or light amber C. H. Denny, 483 Moody Street, Akron, Ohio.

HONEY WANTED—CARLOADS ONLY. WHITNEY HONEY COMPANY, PUYALLUP, WASHINGTON.

CASH FOR YOUR HONEY—Extracted or comb. Regular trade, send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades. Carloads or less Also beeswax. Pay top prices. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich Street, New York 7, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Calif.

WANTED — Clover extracted or comb honey, any quantity. C, Jankowski, Prairie View, Illinois.

WANTED—Light extracted honey. clover preferred, in 60's. J. Jones, 115 West 82nd St. New York 24, N. Y.

WANTED—Honey, extracted or comb. Mail sample, quote price. SEIFERT & MANN, 106 South Water Market, Chicago, since 1889.

WANTED—A can or a ton, light or light amber, top quality honey. Mail sample and quote price. Alex Yannaccone, Minersville, Penna.

WANTED—HONEY. Strained, chunk, or section. No amount too large nor too small. Top price. Spot cash. Lose Brothers, 206 East Jefferson Street, Louisville 2, Ky. Call JA 1015 collect.

FOR SALE

FOR SALE—Four frame Lewis-Markle power drive second hand extractor. First $35.00 gets it. Peter Tangen, Ossian, Iowa.

HONEY LABELS — Improved designs, embodying color balance, simplicity, and distinction. Please send for free samples and prices. C. W. AEPPLER COMPANY, OCONOMOWOC, WIS.

QUEENBEE PAINTING OUTFITS, $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban; Mass.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Mich.

WRITE FOR LOW CASH price glass jars and 5 lb. tin pails. Complete stock. Prompt shipment. Roscoe F. Wixson, Dundee, N. Y.

YOUR WAX worked into high grade brood foundation, for 22 cents pound, 100 pounds, $18.00. Fred Peterson, Alden, Ia.

We carry a complete stock of bee supplies and honey containers. Write for our price list. Prairie View Honey Company, 12303 12th Street, Detroit 6, Mich.

SIMPLEX TRAP clips queens without handling. $1.75 postpaid. INSTANT FRAME SPACERS, seven-eight-nine, Fast—accurate. $1.50 postpaid. Free circulars. George Leys, 48 Drake Avenue, New Rochelle, N. Y.

FOR SALE—Bee outfit of 550 colonies at $34.00 each with equipment for running. Also large well furnished house and a five thousand dollar bee shop including nearly five acres of land in choice location across the street from grade and high school building in town of 1500 population. House, shop, and land valued at $20,000. Bees in deeps, with 4 shallows as equipment, mostly 6-inch depth supers. They are wintered mostly in two story deeps or a deep and shallow and have between 50 and 60 lbs. for wintering stores. However, we allow only one deep and four shallows with the hive for equipment. H. E. Crowther, Cass City, Mich.

HONEY WANTED
Carloads and less than carloads.
Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

HONEY WANTED
FOR EXPORT AND DOMESTIC
All Grades - Any Quantity
Foreign Commodities Corp.
100 Hudson Street
New York 13, N. Y.

WANTED: Extracted Honey All Kinds
One can or a carload—what have you? Mail your offerings and samples to us. Prompt action. Cash on delivery.
JEWETT & SHERMAN COMPANY
Lisbon Rd. & Evins, Cleveland 4, O.
1204 W. 12th St., Kansas City 7, Mo.

Michigan Clover Honey Producers
Ask for a NEW SYSTEM. Ask for higher prices for your 1947 crop of MICHIGAN clover honey. Do not promise your 1947 crop of Michigan clover honey without first getting the Northstar plan. You will be pleased that you did. Yours for this coming season's business.
Townsend Sales Company
Northstar, Michigan

Soy Flour and Pollen Traps
We are distributors of Staley's Lo-Fat, High Protein expeller processed soy flour for beekeepers. We offer the finest quality in our soybean flour and pollen traps.
KILLION & SONS APIARIES
Paris, Illinois

BEE WISE - READ
The Beekeepers' Magazine
If you haven't seen my independent publication, just drop me a postal card and I'll mail you a free sample copy.
ELMER CARROLL — Publisher
Rt. 5 Box 181 Lansing, Mich.

FOR SALE—One single and one 10-frame observatory hive; empty excellent cabinet works, $10.00 each. J. Haviland, 106 East Maple, Hinsdale, Illinois.

PURE COUNTRY sorghum and Georgia Cane syrup, $3.50 per 10 lb. pail; $18.00 per case of 6 10's. Cash with order. Lose Brothers, 206 East Jefferson Street, Louisville, Kentucky.

FOR SALE—Complete comb foundation manufacturing machinery, including sheeter and boiler. Box 147, Gleanings, Medina, Ohio.

FOR SALE—Bee frames, standard size, grooved top bar, only $80.00 a thousand. Harold L. McDaniel, Polson, Mich.

500 new wooden honey cases (60's). L. Depew, Auburn, New York,

Root 10" bee comb foundation mill. Never been used. Julius Victor, 46916 Michigan Ave., Belleville, Mich,

FOR SALE—300 10-frame hive bodies, shallow supers, metal covers, and cypress bottoms. No frames. 50 Dadant bodies, covers, and bottoms. All been painted two coats. Earl L. Baker, Lake City, Mich.

FOR SALE — Standard 10 frame bee hives. New, made of best grade yellow poplar, the material we have used for years. With frames and flat tops covered with galvanized or aluminum sheets, $4.00 each, K. D. in lots of five F. O. B. West Elkton, Ohio. Write Hyland Apiaries, W. Elkton, Ohio.

NOTICE PACKAGE BEE MEN
We can supply you any number of 3 lb. shipping cages made of poplar with binding strips and nails less wire and cans. KD F. O. B. Sylvester, Ga. at 25c each in lots of 100 or more. Write Hyland Apiaries, Sylvester, Ga.

BEES AND QUEENS FOR SALE

Gleanings cannot guarantee that all bees advertised for sale in its classified columns are free from disease. We use all possible care in accepting advertisements, but we cannot be held responsible in case disease appears among bees sold. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

Caucasian package Bees and Queens. Spring Delivery, 2 lb. pkg. $5.; 3 lb. pkg. $6.00. Untested Queens, $1.40 each. Lewis & Tillery Bee Co., Greenville, Ala,

MILLER & EVANS—Booking package bees for spring delivery. Write. Caucasians. Miller and Evans, Three Rivers, Texas.

BREWER'S LINE - BRED CAUCASIAN QUEENS—Book your order for April delivery now. Write for prices and terms. No package bees. Brewer Brothers Apiaries, 3217-R Hawthorne Road, Tampa 6, Florida.

THANKS for 1946's business; booking 1947 queens at 1946 prices. Lange Apiaries, Llano, Texas.

On account of poor health will sell 200 or 100 two story colonies of bees, all with good queens. Will average 80 or more lbs. of feed per colony. Price, $30.00 each. Bees are at present wrapped good for winter in sheltered locations with 5/8 auger hole front entrance. All near Cherokee, Iowa. Inspection certificate furnished. Must know by Feb. 1, 1947. Write Box 3, Route 2, Cherokee, Iowa.

THREE-BANDED Italian Queens and Bees for 1947. 2 lb. packages with queen, 1-24, $4.50; 25-100, $4.25. Extra bees, $1.35 and $1.30 per lb. Extra Queens, 1-24, $1.40; 24-99, $1.30; 100-up, $1.20. Cottage Hill Apiaries, Rt. 2, Mobile, Alabama.

SUPPLIES

BUY YOUR POLLEN SUBSTITUTE REQUIREMENTS NOW. We have hard-to-get Dried Brewers Yeast at 35c per lb.; 100-lb. bags, $29.50. Soybean Flour, 15c per lb.; 100-lb. bags, $8.95. F. O.B. Minneapolis. Free instructions for using included with your order. HONEY SALES COMPANY, 1806-08 No. Washington Ave., Minneapolis 11, Minn.

SEEDS

HIGH TESTING ALFALFA $20.40; Grimm $24.90; Red Clover, high quality (contains some Timothy), $19.90; Alsike $25.20; Sweet Clover, Scarified $8.25; Unhulled $4.20; New Timothy $3.75; Alsike and Timothy $6.40; Certified Brome $3.75; Korean Lespedeza $2.50; many other values. All per bushel, triple recleaned. Hybrid Corn $4.25, Guaranteed satisfactory. Free Samples—Catalog. Charles Sinn, Box 482, Clarinda, Iowa.

SEND POSTAL FOR NEW ILLUSTRATED circular on bluevine and other honey plants. Insecticides for wax moth control—other beekeeper items. Tritox Chemical Company, Washington, Indiana.

ANISE-HYSSOP seed, packet 25c; ½ ounce $1.10; [1 lb. $32.00—should plant one acre]. Write for our circular on nectar and pollen producing shrubs, trees, and perennials. Nicollet County Nursery, St. Peter, Minn.

PURDUE HYBRID POPCORN SEED, also popping corn. Atomic Seed Company, Rock Port, Mo.

SEEDS OF HONEY PLANTS—Simpson honey plant per ounce, $1.00; Golden honey plant, ½ pound, $2.50; Anise-hyssop, ounce, $2.00; Purple Loosestrife, ¼ pound, $3.00; Ladino clover certified seed, pound, $2.75, postpaid. Circular free. Pellett Gardens, Atlantic, Iowa.

ANISE HYSSOP SEED, Packet, 25c; ½ ounce, $1.10. James Beecken, Route 1, Elgin, Ill.

HARDY ALFALFA U. S. GROWN, $22.30 per bushel; Grim $24.50; Red Clover (25% Timothy) $20.00; Scarified Sweet Clover $8.30; New Timothy $3.50; Timothy and Clover mixed $6.75; New Fancy Brome $3.70; Korean Lespedeza $2.60; Hybrid Seed Corn, tested, $4.25. Our seeds recleaned, tested. Guaranteed satisfactory and sold subject your 60-day test. Write for Free Samples and 1947 Catalog. Hurry, scarcities exist. AMERICAN FIELD SEED CO., Dept. 382, Chicago, Illinois.

HELP WANTED

WANTED — Experienced queen yard man. Year around employment in yards and shop. We can funish a good modern home to live in. Give full information, age, experience, and salary expected in first letter. H. C. Short, Fitzpatrick, Ala.

WANTED—Helpers in our apiaries at Sylvester and Apalachicola, Georgia. Hyland Apiaries, West Elkton, Ohio.

WANTED—Experienced queen and package bee men for our apiaries. Only honest reliable men considered, no boozers. Give full information, age, experience, refer-

The John M. Davis Strain

Bred the Davis Way
ITALIAN QUEENS

I wish to thank all my many customers for their patronage in 1946. Now booking orders for spring delivery. Sorry I could not fill all orders.

Untested $1.25
Tested 2.00

Little's Apiaries
P. O. Box 122
Shelbyville, Tenn.

1947 PRICES 1947
Highest Quality Package Bees
Select Three-Banded Italian
Queens of our Own Production

Quantity	1-11	12-99	100-up
2 lb. pkg. w/q.	$4.35	$4.20	$4.00
3 lb. pkg. w/q.	5.35	5.20	5.00

All packages shipped Express Collect. $1.00 per package will book your order.

QUEENS, less than a dozen, $1.50 ea.; 12 to 99, $1.35 ea.; 100 or more, $1.25 ea. Parcel Post Prepaid.

Full Weight Packages Young Laying Queens Live Delivery and Satisfaction Guaranteed

JOHN C. HOGG, Apiarist
Tifton, Georgia

Hall Apiaries

Italian Bees and Queens

	Queens	2 lb. pkg.	3 lb. pkg.
1-24	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100 up	1.20	4.00	5.25

Shipping date beginning April 1.

P. O. Box 415, Prichard, Ala.

Now booking orders for 1947
Leather Colored Queens
and Package Bees
Write for prices
Lynn Williams
Rt. 3 Oroville, Calif.

Queens **QUALITY** **Packages**

NOW BOOKING FOR 1947

	Qns.	2 lb.	3 lb.	4 lb.
1-24	$1.40	$4.50	$5.85	$7.20
25-99	1.30	4.25	5.55	6.85
100-up	1.20	4.00	5.25	6.50

Live delivery guaranteed. Health certificate with each shipment. 25% deposit books order.

ALLEN APIARIES
R. F. D. Box 213
Semmes, Alabama

Italians
Bees and Queens for 1947
Dark three-banded strain that are good producers

2 lb. pkg. with queen	$3.85
3 lb. pkg. with queen	4.85
Extra queens	1.10

$1.00 deposit required on each package booked.
A. M. Peach, Baldwyn, Miss.

"CARNIOLANS"
Sorry, cannot accept any more orders, 1947 season.
EPHARDT HONEY FARMS
Plaucheville, La.

Italian Bees and Queens for 1947

2-lb. pkg. with queen	$3.85
3-lb. pkg. with queen	4.85
Queens	1.15

Health certificate with each shipment and live delivery guarantee.
Bayou Bee Company
Rt. 1, Box 49, Montegut, La.

ence and salary expected in first letter. Good opportunity for right parties. YORK BEE COMPANY, JESUP, GEORGIA.

WANTED—Capable bee man for extracted honey production. Opportunity for veteran. Country man preferred. Season, April 1-Nov. 15. Board, room furnished. Give full particuars. Lavern Depew, Auburn, New York.

GOOD OPPORTUNITY for first class bee man in a modern California apiary. Able to assist in managing 1500 colony outfit in honey and package bee production. House furnished. State qualifications and wages expected. Also need two experienced or inexperienced helpers. F. E. Morrison, Rt. 2, Auburn, Calif.

WANTED—Experienced young man to work in commercial outfit of 20 yards. Year round work to right man. Must be honest and willing, no tobacco user or drinker. State age, height, weight and wages wanted, also give references. Arlee Apiaries, Arlee, Montana

WANTED—Two men to work in our apiaries. Opportunity for advancement. Schultz Honey Farms, Ripon, Wisconsin.

WANTED—For our southern business, capable queen breeder. Could also use man in package shaking and extracting time. H E. Crowther, Cass City, Mich.

WANTED—Experienced and inexperienced help for winter work in Texas and summer in Minnesota. J. D. Beals, 722 E. Filmore, Harlingen, Texas.

POSITION WANTED

WANTED—Job as helper with a good honest beekeeper in Ohio or Michigan. By an honest young man with some experience. No bad habits. —Jnuiour F. Buckeleu, Howell, Michigan, Rt. 2.

MISCELLANEOUS

Book orders for ANDERPOLL, a bee pollen substitute which contains ingredients recommended by leading authorities, plus minerals and vitamins. Free circular. Bruce Anderson, Chatham, Va.

BOOKBINDING: Will bind your Gleanings in rich brown cloth for reference. One year, $2.00. Index must be supplied E. N. Bradford, Westminster, Colorado.

RABBITS

ORIGINAL GIANT CHINCHILLA RABBITS. Prolific. Profitable. Most valuable fur. Big demand. Delicious meat. Markets furnished. Willow Brook Farm, R129, Sellersville, Pa.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s' 6d, ($1.50) International Money Order, Apply Editor, Indian Bee Journal, Ramgarh, Dist., Nain Tal. U. P. India.

WESTERN CANADA BEEKEEPER—official organ of the Manitoba Beekeepers' Association. One year, $1,00; in combination with one year's subscription to Gleanings in Bee Culture, $2.25. Wallingford Building, Winnipeg, Canada.

Read the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treas-

urer, E. E. A. Leach, Box 57, East Rand P. O., Transvaal, South Africa.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End. Foxton, Royston, Herts, England.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription—$1.50. Sample copy fifteen cents.

Package Bees for 1947

2-lb. package with queen, $4.00 ea.
3-lb. package with queen, 5.00 ea.
4-lb. package with queen, 6.00 ea.

Queenless package, deduct $1.00 from above price. 20% down books order.

Hessmer Bee Farm
Hessmer, La.

PACKAGE BEES

St. Romain's
HONEY GIRL APIARIES
Moreauville, La.

GASPARD'S

Quality Queens and Package Bees

We are now booking orders for spring 1947 delivery. Only 20% with order, balance 10 days before shipping time. We guarantee live arrival and health certificate accompanies each shipment. Prices as follows:

	1-49	50-up
2 lb. pkg. with queen,	$4.25	$4.00
3 lb. pkg. with queen,	5.25	5.00
4 lb. pkg. with queen,	6.25	6.00
5 lb. pkg. with queen,	7.25	7.00
Queens $1.25 each.		

Gaspard Bee Co., Hessmer, La.

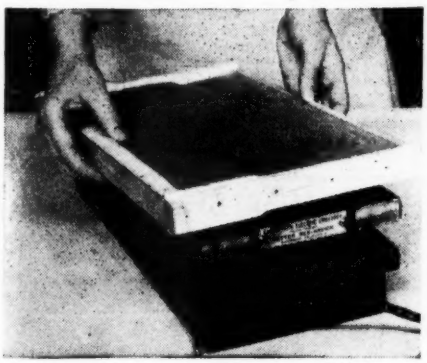
Italian Bees and Queens

2 lb. with queen $4.00
3 lb. with queen 5.00
4 lb. with queen 6.00

Certificate of inspection and safe delivery guaranteed.

Clover Bee Farms
Hessmer, La.

Protect your future. Buy your extra Savings Bonds now.



A Happy and Prosperous New Year
from
Carpenter's Electric Embedder
Patented
"BETTER BEE-HAVIOR"
Trade-Mark

To our FRIENDS in Foreign countries we also wish to express our appreciation for your orders and interest this past year.

The EMBEDDER embeds all wires instantly and perfectly.

CLAIRE E. CARPENTER
4266 Homewood Court
Riverside, California

Italian Bees and Queens for 1947

Hardy — High producing — Gentle

2 lb. pkg. with young laying queen $4.00
3 lb. pkg. with young laying queen 5.00
Queens 1.25

B. J. Bordelon Apiaries, Moreauville, La.

XUM

ANNOUNCEMENT

We have purchased the patent rights and equipment for manufacturing the Pierce Electric Uncapping Knife and the Pierce Queen Grafting or Transferring Tool. Quality of materials and workmanship will be maintained. Deliveries will start in January, 1947.

Electric Uncapping Knife $12.00
Queen Transferring Tool 2.25

Macy Electric Knife Company
6729 Seville Avenue
Huntington Park, California

Our 1947 Spring Prices

In view of increased operating costs, we have revised our price schedule as follows:

Quantity	Queen	2 lb. pkg.	3 lb. pkg.
1-24	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100-up	1.20	4.00	5.25

BESSONET BEE COMPANY
Donaldsonville, La.

ITALIANS! QUEENS! CAUCASIANS!
Daughters of Queens bred for Resistance — Bred to Italian Drones
All three races bred in separate yards
2-lb. package bees with queen, $5.00; 3-lb. package bees with queen, $6.25.
Extra Queens, $1.50 each. Booking orders for 1947
OVER 25 YEARS A SHIPPER IN U. S. A. AND CANADA
Sulfathiazole used in feed at no extra cost to you
MASTER MIX POLLEN made from Soybean flour, Cottonseed meal, Brewer's yeast, Skim milk, Natural pollen, Invert sugar, and Sulfathiazole. 10-pound pail, $2.50; six pails, $13.50; Send for FREE CIRCULARS.
BLUE BONNET APIARIES, Rt. 2, Box 23, WESLACO, TEXAS

Italian
Packages and Queens
High quality at fair prices
Write for open shipping dates
Rapides Apiaries
Winnfield, La.

HOLLOPETER'S
Hardy, hustling, honey-gathering Italian queens, Northern bred from selected stock.
Shipping season, May 20-November 20
White Pine Bee Farms, Rockton, Pa.

Italian Bees and Queens
We are booking orders for Spring 1947. Only 20% with order; balance 10 days before shipping date.
Prices as follows:
2 lb. package with queen $4.00
3 lb. package with queen 5.00
4 lb. package with queen 6.00
The Star Bee Farm
3-banded Italian Bees, Hessmer, La.

Now Booking Orders for Package Bees and Queens for 1947
Italian and Caucasian Queens
Write for Prices
R. E. LaBarre
Box 172 Shasta Co.
Cottonwood, California

We have

HONEY

FOR SALE

Price List and samples on request.

Let us know:

1. **How much you need.**
2. **Whether for table or industrial use, or both.**
3. **Are you equipped to handle barrels and drums, or must honey be in 60's? Liquid or crystallized.**

R. B. Willson, Inc.

630 Fifth Avenue, New York 20, N. Y.
Telephone Circle 5-4340.

POLLEN SUBSTITUTES

	1 lb.	5 lb.	10 lb.	25 lb.
Brewer's yeast and soy flour expeller mixed, 1 to 6		$0.75	$1.50	$3.00
Brewer's yeast	$0.40	1.50	2.75	5.50
Soyflour			1.40	2.50
Dry skim milk	0.40	1.50	2.75	5.75

Write for prices in larger quantities. Include postage if you wish it by parcel post. All prices collect. Bainbridge, N. Y.

M. Y. S. Company, Bainbridge, New York.

GARON'S PACKAGE BEES AND QUEENS
THREE-BANDED ITALIANS
and MRAZ'S STRAIN BRED FOR RESISTANCE

Under present rising prices we find it impossible to operate under the 1946 prices. We therefore have revised our prices in order to continue our past dependable services.

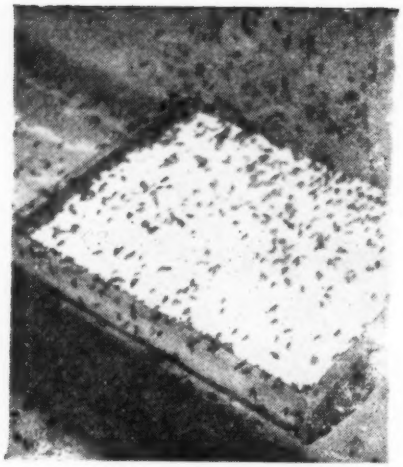
SPRING 1947

Quantity	1 to 9	10 to 24	25 to 99	100 or more
2 lbs. with queen	$4.25	$4.15	$4.10	$4.00
3 lbs. with queen	5.30	5.20	5.15	5.00
4 lbs. with queen	6.50	6.40	6.35	6.30
Young laying queen	1.25	1.25	1.20	1.15

10% down payment, balance 15 days before shipping date.
(Queens Clipped at No Extra Charges)

DEPENDABILITY, QUALITY, AND SERVICE

GARON BEE COMPANY, Tel. 8614, Donaldsonville, La.



Picture taken March 2, 1946 at Crawfordsville, Ind. by Harry Starnes showing bees wildly working on dry pollen substitute.

Pollen Substitute

Dry pollen substitute is so easy to feed. One hundred pounds takes only a minute to mix and then simply pour it into a tub or any handy receptacle and place it near your bees in the sunshine and watch them go to work.

Each colony will take about 5 pounds of substitute during the spring and feeding should start late in February north of the Ohio river and earlier farther south. The proper mixture is one part of yeast to 6 parts of soy. Circular with each order.

However, due to the slowness of transportation freight orders should be ordered now.

		Wt.	
25 lb. bag	**Soy flour,**	**27 lbs.,**	**$2.75**
100 lb. bag	**Soy flour,**	**103 lbs.,**	**7.15**
	* * * * *		
5 lb. bag	**Yeast,**	**6 lbs.,**	**1.50**
25 lb. bag	**Yeast,**	**27 lbs.,**	**6.00**
100 lb. bag	**Yeast,**	**103 lbs.,**	**20.00**

All prices F. O. B. Paducah

Walter T. Kelley Co. **Box 210** **Paducah, Ky.**

The Iowa Beekeepers' Association offers the quality you want in DR stock. Consider these points:

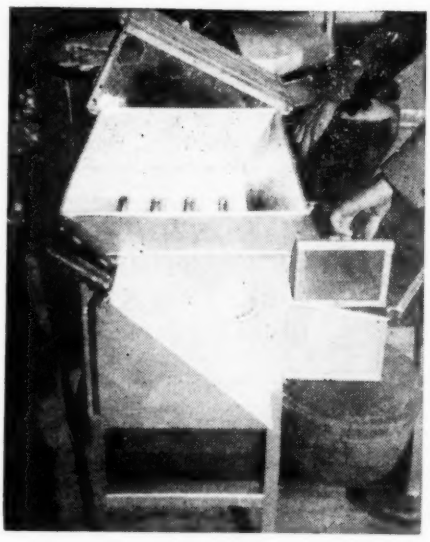
1. Improved stock through yearly scientific selection for resistance to AFB.
2. Superior methods employed in rearing and mating daughter queens.
3. Stock constantly checked under official supervision for performance.

If such stock means anything to you for honey production place your order IMMEDIATELY as desirable shipping dates may not be available.

		Pkgs. with DR queens	
Quantity	Queens	2 lbs.	3 lbs.
1 to 9	$1.65 ea.	$5.20 ea.	$6.20 ea.
10 to 49	1.50 ea.	5.00 ea.	6.00 ea.
50 to 99	1.40 ea.	4.75 ea.	5.85 ea.
100-up	1.35 ea.	4.65 ea.	5.75 ea.

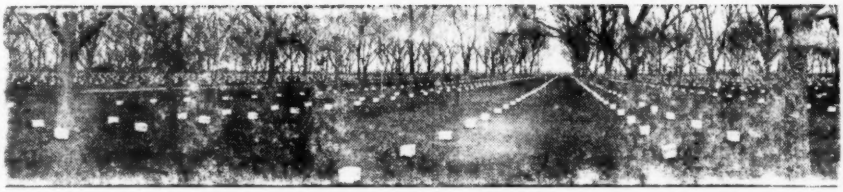
Send in your order immediately with a 10% down payment attached.

Iowa Beekeepers' Association
STATE HOUSE
Des Moines, Iowa



WRITE ME IF YOU ARE INTERESTED IN A CAPPING MELTER which actually costs you nothing as the cost is saved in honey and wax plus convenience and improved performance.

B. M. Crawford
305 N. McClay St., Santa Ana, Calif.



Above photo shows a portion of one of our queen yards

Italian Bees and Young Queens

150,000 lbs. sugar going into the production of your bees.
Money cannot buy better packages and queens.

Prices:	With Quantity Discounts			
	1 to 9	10 to 49	50 to 99	100 and up
2 lb. pkg.with queen (each)	$4.50	$4.25	$4.15	$4.00
3 lb. pkg. with queen (each)	5.65	5.40	5.30	5.15
4 lb. pkg. with queen (each)	6.80	6.55	6.45	6.30
Queens (each) $1.35	Tested $2.00			

We Solicit Large Queen Orders

Overbey Apiaries, Bunkie, La.

JUST NEWS

(Continued from page 44)

P. M., Room H, County Court House, Hackensack. The keynote will be "get acquainted". — Richard A. J. Geoghegan, Secretary.

* * * * *

Bronx County Beekeepers' Association will start the new year off by holding its monthly meeting on January 12, 1947, at 2:30 P. M. The meeting will be held at the home of Mr. Frank Glazer of 3424 Gates Place, Bronx. The old year of 1946 leaves us with pleasant memories of twelve enjoyable meetings along with many new members in the association. Let us start the new year off by seeing a lot of you old timers so the new members may learn some of the city tricks of beekeeping that you have stored under your hat. The executive board of the Bronx Beekeepers' Association wish you, one and all, a very happy and prosperous New Year.—Sam Roberts, Sec.

* * * * *

In the August 1946 issue of the Journal of Economic Entomology (Vol. 39, No. 4, pp. 427-448) under the title, "Common Names of Insects Approved by the American Association of Economic Entomologists", "lesser wax moth" appears for the first time as the approved name for the moth bearing the scientific name of **Achroia grisella (F.).** "Wax moth" is still the common name accepted for the species **Galleria mellonella (L.),** which is commonly called "greater wax moth" to distinguish it from the lesser wax moth. In view of these facts one should remember that if the lesser wax moth is meant that particular designation should be used, since "wax moth" is now used for the larger of the two species in question.

* * * * *

Weather Factors Influencing Honey Production is the title of Special Bulletin 340 issued in October, 1946, by Agricultural Experiment Station, Section of Horticulture, East Lansing, Michigan, written by Carl Jorgensen and Floyd Markham. Mr. Jorgensen, a graduate student of Michigan State College, has studied and interpreted records covering many years, supplied by Mr. Markham, a well known commercial beekeeper of Michigan.

Due to the continued rise in the cost of production we have found that the following prices are the lowest at which a shipper can sell and still realize a fair margin of profit.

Prices from April 1st to June 1st:

	Qns.	2 lbs.	3 lbs.	4 lbs.
1-24	$1.40	$4.50	$5.85	$7.20
25-99	1.30	4.25	5.55	6.85
100-up	1.20	4.00	5.25	6.50

Prices after June 1st:

1-24	$1.10	$4.20	$5.55	$6.90
25-99	1.00	3.95	5.25	6.55
100-up	.90	3.70	4.95	6.20

For queenless packages deduct price of queen. Packages F. O. B. Jeanerette.
Queens Prepaid
Booked to May 20th

THE RICH HONEY FARMS
Jeanerette, La.

PLANT'S 3-Banded Italians

Our queens are rigidly culled and reared from only the highest producing, gentle stock. Packages are full weight, young bees in new light weight cages. No disease has ever been found in any of our queen or package yards.

	1-24	25-99	100-up
2-lb. pkg.	$4.50	$4.25	$4.00
3-lb. pkg.	5.75	5.50	5.25
Untested queens	1.50	1.35	1.20

Above prices include young laying queens and are F. O. B. shipping point. Queens are postpaid. $1.00 per package with order, balance 10 days or more prior to shipping date.

W. E. PLANT
Rt. 2, Hattiesburg, Miss.

Whittle's

Leather colored Italians

Book your order now for 1947

1947 Packages with Queen

	2 lbs.	3 lbs.	4 lbs.
1-24	$4.50	$5.85	$7.20
24-99	4.25	5.55	6.85
100-up	4.00	5.25	6.50

Our bees and service will please you

G. E. Whittle
Greenville, Alabama

AGAIN WE HAVE FOUND A CURE FOR FOULBROOD

(Continued from page 11)

time. Cases of apparent immunity are on record as are those of apparent resistance. And it has been observed that in cases of wholesale rob-outs not all the colonies in a yard may break down. It is also true that the feeding of diseased material to test colonies does not result in all colonies so fed coming down with the disease.

Some years ago the writer had the privilege of observing one such experiment. From outlying bee yards 48 colonies were selected at random. These were set up in lots of 12 colonies each. All were fed a ten pound pail of honey, diluted 50% with water, which had been extracted from the brood nests of infected colonies.

Out of the 48 colonies, 31 became infected. Of this amount, 8 broke down rapidly and were destroyed. In 20 the advance was much slower, but they too were destroyed . The three others cleaned up the disease and apparently remained free.

The 17 that did not become infected were again fed diluted honey as before, six of them breaking down and being destroyed. The remaining 11 were put on a feeding program of natural honey from the same source as the diluted honey. Three of them showed a cell or two of disease that later cleaned up and the entire 11 remained free, as far as the writer knows.

While the experiment seems to be conclusive that bees can be found immune or resistant to the disease, the writer considers this rather unusual since in his experience he has had instances of 100% infection in his bee yards. Nevertheless there is sufficient evidence pointing to the possibilities of breeding to eliminate AFB as a reasonably sensible solution to the problem, rather than spending our efforts devising treatments when we should be working for its elimination.

Ohio

BETTER BRED QUEENS THREE BAND ITALIANS

We thank our many customers for their patronage this season.
We are now booking orders for 1947

CALVERT APIARIES — Calvert, Alabama

LEST YOU FORGET, THE GOOD RULE TO GO BY

buy your bees from
ALABAMA APIARIES
25 years satisfactory service

Alabama Apiaries

Uriah, Alabama

CARNIOLANS CAUCASIANS

Gentle, prolific, good winterers, build up rapidly in the spring. We will offer a limited number of 2 lb. and 3-lb. packages and queens, 8-fr. and 10-fr. colonies in the spring. Begin shipping packages early in May. Queens of both races in season.

Albert G. Hann, Glen Gardner, N. J.

Queens of the Golden West

Buy Western-bred queens and package bees for best results. We are now booking orders for spring 1947.

CLIFTON APIARIES
Oroville, Box 684, California

Special Announcement

This is to advise our friends and customers that the Newton & Lott Bee Company has effected a friendly and cordial dissolution.

We each want to thank our many friends and customers for years of faithful patronage and continue to solicit your friend ship and patronage to our independent operations.

Each will operate independently hereafter under the titles of:

Newton Bee Company
Route 2
Baton Rouge, La.

George Lott Apiaries
Route 2
Baton Rouge, La.

QUEENS FALL QUEENS A SPECIALTY QUEENS
YOU SEND YOUR ORDER I HAVE THE QUEENS
LEATHER COLORED ITALIAN QUEENS
MIDDLE TENNESSEE APIARIES

1 to 25, $1.35; 26 and up, 1.20—From Imported Strains.
¼ books orders. Balance before shipping. All queens clipped and by air mail at no extra cost. (All queens after June 15, $1.00)

J. B. TATE & SON
1209 No. 4th St., Nashville 7, Tenn. Tel. No. 34509M

1947 TANQUARY'S 1947
ITALIAN BEES AND QUEENS

Our shipping dates for the month of April are just about taken up, although we would appreciate hearing from you concerning your needs. We have lots of shipping dates left in May.
Place your order early. We guarantee safe arrival on bees and queens.
Queens clipped at no extra cost.

PRICE LIST FOR 1947

Quantity	1 to 5	6 to 49	50 to 99	100 up
2 lb. bees with queen	$4.50	$4.35	$4.20	$4.00
3 lb. bees with queen	5.50	5.35	5.20	5.00
4 lb. bees with queen	6.50	6.35	6.20	6.00
5 lb. bees with queen	7.40	7.25	7.10	7.00
Queen	1.45	1.40	1.35	1.30
Tested Queen	2.30	2.20	2.10	2.00

Queenless packages, deduct $1.15 per package.
Queens Postpaid—Package bees F. O. B.

TANQUARY HONEY FARMS, Inc., Lena, S. C.

Babcock's Production Bred Italian Bees and Queens

Now Booking Orders for April and May Delivery

* * * * *

We are able to offer several thousand four frame nuclei, packed and shipped two to a ten-frame hive body. These are actually complete colonies of bees, with a young queen already introduced and laying, two full combs of brood, two full combs of honey and pollen, and a minimum of two pounds of young worker bees in each nuclei.

100% Lewis Dadant equipment, nailed and painted, and ready to use.

This type nuclei is well worth the extra cost and will build up quicker and store far more honey than any other type package we have ever seen.

One third down holds your order and choice of shipping dates. Balance due 10 days before shipment. We are prepared to furnish truck loads if called for. Certificate of inspection and live delivery guaranteed.

Price, any number, packed two four frame nuclei in a 10-frame hive body, screened top and bottom, two nuclei for $17.00

BEE SUPPLIES: We can give 30-day delivery and the following items:

BOTTOM BOARDS, made of high quality Long leaf Southern pine, **5 for $4.80.**

COVERS, without inner covers, made of high quality Long leaf Southern pine, and covered with 24 gauge or equivalent pure sheet aluminum. These covers are telescoping on all sides and will last a lifetime, **5 for $7.75.**

* * * * *

Babcock Honey Company

803 Sumter Street, Columbia, S. C.

TELEGRAPH:WESTERN UNION TELEPHONE: 41621

Are You Dragging Your FEET?

Your National organization furnished the essential spark that resulted in decontrol of honey on September 27, 1946.

You have profited and we believe that you appreciate our efforts.

A fraction of those profits would add to our effectiveness and to your profits of the future.

We believe that you want to continue to have a National voice and a National organization.

PICK UP YOUR FEET and put your contribution in the mail TODAY.

National Federation of Beekeepers Associations
Glenn O. Jones, Secretary-Treasurer
Atlantic, Iowa.

I enclose my contribution of $..... in recognition of past services and to insure a continuous and aggressive National organization. Five dollars or more entitles me to membership and a voice in the affairs of the organization.

.....

.....

.....

QUEENS - - - QUEENS

Three Band Italians, the best that can be raised. We specialize in raising queens of good quality. A health certificate is sent with every order.

Satisfaction Guaranteed

1 to 25 .... $1.25 each
25 to 50 .. 1.20 each
50 up .. 1.15 each

Alamance Bee Company
Geo. E. Curtis, Mgr.
Graham, N. Carolina

Protect your future. Buy your extra Savings Bonds now.

HONEY RESOLUTIONS

(Continued from page 14)

apricot halves filled with honey-sweetened whipped cream.

Carrot and Prune Salad

Soften 1 tablespoon plain gelatin in ¼ cup cold water. Dissolve in 1 cup boiling water. Add 3 tablespoons honey, ½ teaspoon salt, and 1 tablespoon lemon juice, stirring until honey is dissolved. Let cool. Rinse large or individual molds in cold water. Line bottoms with ½ cup cut orange sections. When jelly mixture begins to thicken, add 1½ cups grated carrots, 1 cup chopped stewed prunes, and ¼ cup chopped walnuts. Pour into molds. Chill. When firm, unmold on shredded lettuce and serve with mayonnaise.

Nebraska.

QUALITY ITALIAN PACKAGE BEES AND QUEENS for 1947

Quantity	1-2	3-29	30-98	99 & over
2 lb. package and queen	$4.50	$4.30	$4.15	$4.00
3 lb. package and queen	5.50	5.30	5.15	5.00
Queen only	1.50	1.40	1.30	1.25

For queenless packages, deduct price of queen. Packages F. O. B. Queens postpaid.
Deposit, $1.00 per package at booking, remainder due prior to shipping.

GIRARDEAU APIARIES
Tifton, Georgia — J. H.Girardeau, Jr., Mgr.

PACKAGE BEES QUEENS

ITALIANS and CAUCASIANS

The demand for bees is again very heavy. We are doing our best to handle our regular customers' orders, and any additional ones that we can work in. However, a lot of dates are already full, so we advise getting your order in as soon as possible. You may rest assured that we will work in every one that we can.

We Offer You:

Good Bees, Good Queens, Good Business Dealing.

1947 Prices

Lots of:	Queens	2 lb.	3 lb.	4 lb.	5 lb.
1-24	$1.40	$4.50	$5.85	$7.20	$8.55
25-99	1.30	4.25	5.55	6.85	8.15
100-up	1.20	4.00	5.25	6.50	7.75

For queenless package deduct price of queen.

The Stover Apiaries

Mayhew, Mississippi

PUETT'S Packages and Queens 1947

"Nothing's better than the best unless it's better than the rest"

In the face of possible inflationary prices on every article necessary to the production of bees and queens for the coming season, it is impossible to GUARANTEE STABLE PRICES. We do GUARANTEE, as always, PUETT QUALITY of both product and service to our customers. We appreciate your faith and confidence as evidenced by your continued patronage.

Place your orders early for choice shipping dates

Prices with quantity discounts

Quantity Scale:	1 to 9	12 to 84	51 to 99	102 up
2-lb. pkg. with queen	**$4.50**	**$4.25**	**$4.15**	**$4.00**
3-lb. pkg. with queen	**5.65**	**5.40**	**5.30**	**5.15**
4-lb. pkg. with queen	**6.80**	**6.55**	**6.45**	**6.30**

Extra Queens, Untested, $1.25; Tested, $2.00 —any quantity.
For queenless packages deduct $1.25.
Loose-queen type (late shipment only) add $1.00.
These prices subject to change if necessitated by increased price of sugar and materials.

THE PUETT COMPANY, Hahira, Georgia

JENSEN'S

Old Reliable
"Magnolia State" Strain
Italian Package Bees and Queens

A brand New Year fraught with many possibilities that will only be revealed as time marches on. What the future holds for mankind can and will be largely what the brotherhood of man decrees it shall be, and in the degree he determines to respect that decree. May God grant that he might profit by past mistakes and prejudices.

Our New Year wish is that it may be profitable and pleasant for all.

Jensen's Apiaries
Macon, Miss.

1947 Italian Package Bees and Queens

Bred over a period of years for large honey crops, and ease of handling.

State Health Certificate with each package or queen. No drones—Prompt Shipment—Safe Arrival—Satisfaction Guaranteed.

	1-9	10-49	50-99	100 up
2 lb. w. q.	$4.50	$4.25	$4.15	$4.00
3 lb. w. q.	5.65	5.40	5.30	5.15
4 lb. w. q.	6.80	6.55	6.45	6.30

Extra Queens—$1.45

R. B. Herier Co.
Valdosta, Ga., U. S. A.

YORK'S PACKAGE BEES AND QUEENS
QUALITY BRED ITALIANS for 1947

Orders are being placed rapidly for coming season, which indicates the demand will surpass past seasons. Determine your needs and place your order now without further delay. We will be fully prepared to supply highest quality bees which are so much in demand by leading honey producers who know. Quality does not cost—it pays. 1947 prices in U. S. funds.

PACKAGE BEES WITH QUEENS

Quantity	1 to 2	3 to 27	30 to 99	102 up
2-lb. package	**$4.50 ea.**	**$4.35 ea.**	**$4.20 ea.**	**$4.00 ea.**
3-lb. package	**5.50 ea.**	**5.35 ea.**	**5.20 ea.**	**5.00 ea.**
Extra queen	**1.50 ea.**	**1.45 ea.**	**1.40 ea.**	**1.35 ea.**

Queenless packages, deduct $1.15 per package

Our prices show only a very slight increase over past season. Bees are supplied in neat new cages. Certified bees from our own apiaries, state registered and state inspected. Extra queens by mail and package bees by express only. We recommend 3-lb. size packages as best all around size. If convenient, small orders cash, larger orders $1.00 deposit per package to insure order, and the balance not less than two weeks prior to shipping date. Thanking all of you for past favors and wishing more honey to you for a greater 1947.

YORK BEE COMPANY, JESUP, GEORGIA, U. S. A.

(The Universal Apiaries)

SUNKIST Packages Queens **ITALIAN**

We have no more shipping dates to offer in April.
We can take orders for shipment after May 10.
Live delivery—Young queens and bees—Health certificate
Prices in effect on orders received after January 1, 1947:

	1-24	25-up
2-lb. with queen	$4.25	$4.00
3-lb. with queen	5.25	5.00
Queens	1.25	1.15

NOTICE ..... CHANGE OF ADDRESS

SUNKIST BEE COMPANY....Convent, La.....Telephone 101-W

Three Band Italian
PACKAGE BEES

Full weight, prompt shipment, young bees. State Health Certificate with each shipment. Live arrival guaranteed. Replacement or refund promptly made upon receipt of bad order from your express agent.

Our prices until June 10, 1947 in U. S. Funds.

	Each	With Queens			
	Queens	2 lb.	3-lb.	4-lb.	5-lb.
1-29	**$1.10**	**$4.00**	**$5.10**	**$6.20**	**$7.30**
30 or more		**3.50**	**4.50**	**5.50**	**6.50**

For queenless Packages deduct $1.10 each from above prices. If queens are wanted introduced, add $1.10 to the price of each package.

Jackson Apiaries

Funston, Ga., U. S. A.

10,000 PACKAGES

ITALIAN BEES WITH QUEENS

While they last. Booking is heavy.

5,000 Extra Queens

3 lb. Packages with Queens	$5.00
2 lb. Packages with Queens	4.00
Extra Queens	1.25

We Serve to Serve Again

SUNNY SOUTH APIARIES

Marksville, La. **I. Clark, Prop.**

PACKAGE BEES AND QUEENS

Leather Colored Italians
Bred for Production

Prices of Package Bees and Queens

Lots of	2 lb.	3 lb.	Ex. Queen
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

Terms: 25% deposit to book order, balance ten days before shipping date. We replace any bees that die in transit if it is our fault. If it is the carriers' fault, file claim with them. We start shipping February 1. Old customers will be given preference.

The Island Apiary

Collier City, Fla.

Announcing 1947 Prices on Package Bees

Because of the time between now and delivery and the uncertainty of conditions in general, quotations have been hard to establish. However, considering rising costs of labor, lumber, wire, nails, sugar, cans, and all other supplies necessary for the production and shipment of bees plus the guarantee of live arrival, we have established the following prices for 1947:

2 lb. pkg. with queen, .. $4.30, any no.
3 lb. pkg. with queen .. 5.50, any no.
Larger pkgs., add per lb. 1.20
Queenless pkgs. deduct $1.40 per pkg.

10% deposit with order—balance 10 days before shipment is due. If you have placed order confirm with deposit at once.

"They Satisfy"

Rossman & Long

P. O. Box 133 Moultrie, Ga.

We Recommend

Root QUALITY BEE SUPPLIES

For Michigan

Anticipate your needs for 1947 NOW and order early.

We'll do our best to give you good service on items as they are available.

We now have a good stock of Honey Containers.

Write us about our new all brass honey jar filling valves.

We Want Your Beeswax

Paying 46c for dark; 48c for light.

From "Soup to Nuts"—
if we don't have it, we'll try and get it for you.

M. J. BECK CO.

Successor to M. H. Hunt & Son
510 No. Cedar St. Box 7
Lansing 1, Michigan

Bee Gloves

Immediate Delivery!

Made from top grain cowhide.
Positive protection.
Guaranteed Satisfaction or your money refunded.
Price per pair **$3.75**
Sizes: Small, Medium and Large

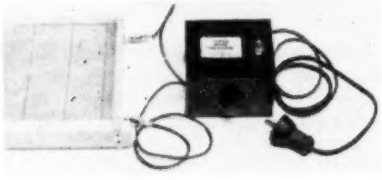
APIARY SUPPLY HOUSES WRITE FOR QUANTITY DISCOUNTS ON GLOVES

KING * MOORE COMPANY
7034 No. Figueroa St., Los Angeles, Cal.

Honey and Beeswax Wanted

We are ALWAYS in the market paying best market prices
Send for our 1946 price list on bee supplies
Doing business since 1858

The Fred W. Muth Co.
229 Walnut St., Cincinnati 2, Ohio



SUPER WIRE IMBEDDER

Mfg. by
R. P. EASTON
1227 Cornell Ave., Hillcrest
Binghamton, New York

The first workable, safe, and fool-proof wire imbedder on the market. A strong plastic box containing a special transformer and voltage control, a switch, and wire leads with suitable pinch clamps for attaching to the ordinary steel wire which is used on your frames to reinforce foundation. The voltage control knob and switch give you FINGER-TIP HEAT CONTROL thereby permitting you to imbed all wires the same in each sheet of foundation. By reinforcing your foundation with horizontal wires you make 3-ply or crimp wired foundation even better. Your combs cannot sag in the hives or break in the extractor.

Price $11.50. **Weight 3½ pounds.**

NOTICE

Write for prices for having your wax made up or outright purchase of

SCHMIDT'S

Economy Foundation

Not excelled for quality strength and workmanship.

Satisfaction Unconditionally Guaranteed

Oscar H. Schmidt & Sons

R. 4 Bay City, Mich.

A Prosperous New Year is our wish for you

* * * * *

We also wish to express our sincere appreciation for your patronage, and hope conditions will improve to enable us to give you better service than we have the the past few years.

* * * * *

August Lotz Company

Manufacturers and Jobbers of Bee Supplies

Boyd Wisconsin

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Keep up on markets, practices, scientific data, regulations, and plant possibilities. 1 year—$1.50; 3 years—$3.00 U. S. and Canada. Foreign postage 25c a year extra.

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Hamilton, Illinois

Protect your future. Buy your extra Savings Bonds now.

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The Leading Bee Journal of the Southern Hemisphere is the

"AUSTRALASIAN BEEKEEPER"

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Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES

Manufacturers of Bee Supplies
ONSTED, MICHIGAN

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